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INSIGHTS

Teaching Practices That Support Thinking and Promote Learning: Qualitative Evidence from High and Low Performing Classes in Vietnam

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Key Points

- Teaching is a complex set of practices that draw on teachers' beliefs about learning, their prior experiences, their content and pedagogical knowledge and repertoire, and their commitment and personality.
- Integrated with other aspects of learning (teaching content knowledge and socio-emotional engagement with students), teaching metacognitive knowledge and strategies was found to be evident in most classrooms with high levels of learning.
- Learning conceptual and procedural aspects of new knowledge requires teaching metacognitive knowledge and strategies, ones that can impact student engagement and contribute to high learning outcomes.
- Foundational skills are critical but should not be limited to basic content mastery. Policymakers, curriculum developers, and teacher educators need to engage with a more expansive understanding of teaching and learning.
- Improving teacher quality for achieving high learning outcomes needs to foster specific ways that students learn to think and employ strategies in their learning.
- Supporting teachers to develop teaching practices that integrate content with metacognitive knowledge and strategies is important to the goal of promoting high levels of learning.

Introduction

This Insight Note contributes to the growing body of knowledge on teaching practices that foster student learning and achievement by analysing in-depth qualitative data from classroom observations and teacher interviews. Much of the research on teachers and teaching in development literature focuses on observable and quantified factors, including qualifications and training. But simply being qualified (with a university degree in education or subject areas), or trained in certain ways (e.g., coaching versus in-service) explains very little of the variation in learning outcomes (Kane and Staiger, 2008; Wößmann, 2003; Das and Bau, 2020). Teaching is a complex set of practices that draw on teachers' beliefs about learning, their prior experiences, their content and pedagogical knowledge and repertoire, and their commitment and personality. Recent research in the educational development literature has turned to examining teaching practices, including content knowledge, pedagogical practices, and teacher-student interactions, primarily through quantitative data from knowledge tests and classroom observations of practices (see Bruns, De Gregorio and Taut, 2016; Filmer, Molina and Wane, 2020; Glewwe et al, in progress). Other studies, such as TIMSS, the OECD and a few World Bank studies have used classroom videos to further explain high inference factors of teachers' (Gallimore and Hiebert, 2000; Tomáš and Seidel, 2013).

A recent study comparing various classroom observation tools used in Tanzanian schools found that the domain of specific instructional activities, such as teacher interactions with students or providing feedback are related to student learning (Filmer, Molina and Wane, 2020). While regression analysis in this study showed that domains from any one instrument only explained a small amount of the variance on test scores, more dimensions resulting from putting the data together from the different observation tools could explain up to 20 percent of the variation in test scores.

Another recent study from Pakistan argues that observed teacher characteristics account for less than 5 percent of the variation in teacher value added (Das and Bau, 2020). These studies suggests that research is needed to capture data that reveal the complexity of how teaching practices affect learning performance and experiences. In this Note, we draw on data from a qualitative study of classroom observations in Vietnam to analyse more deeply these instructional practices. While we examined teachers' beliefs, engagement with students, their teaching of content, and their classroom environment, we found that teaching metacognitive knowledge and strategies was a critical component in classrooms with high learning outcomes.[1]

The study

In this Note, we ask the question: *What are the teaching practices that support and foster high levels of learning?* Vietnam is a useful case to examine because student learning outcomes based on international tests are high, and most students pass the basic learning levels (Dang, Glewwe, Lee and Vu, 2020). But considerable variation exists between learning outcomes, particularly at the secondary level, where high achieving students will continue to upper-secondary and lower achieving students will drop out at Grade 9 (Dang and Glewwe, 2018). So what differentiates teaching for those who achieve these high learning outcomes and those who don't? Some characteristics of teachers, such as qualifications and professional commitment, do not vary greatly because most Vietnamese teachers meet the national standards in terms of qualifications (have a college degree) and have a high level of professionalism (Glewwe et al., in progress). Other factors that influence teaching, such as using lesson plans and teaching the national curriculum, are also highly regulated. Therefore, to explain how teaching might affect student learning outcomes, it is important to examine more closely teachers' practices in the classroom.

This Note is part of our RISE Vietnam study examining factors that contribute to high learning outcomes in Vietnam. For this paper, we inductively analysed the recorded observations of teaching in math and literature classrooms, and pre-/post-lesson interviews of secondary teachers in 20 schools located in 10 provinces across Vietnam. We examined teachers' practices in what we grouped as high and low performance schools. These groups were determined using two sources—annual school reports of students' performance for the grade observed and average student results on math and literature tests conducted by the RISE project. The five high performing schools in our sample had more than 60 percent of students who have achieved excellent and good scores; students also scored in the highest quantile on the exam given for the RISE study. The nine low performing schools in the sample generally had less than 35 percent of students who achieved excellent or good scores, and they scored in our lowest quantile on tests designed for the RISE study. A few other schools had scores in the middle range, or fluctuated between low, middle, and high scores; we do not include analysis of classrooms from these schools in this Note. Students' scores can change from year to year, but for the high and low performing schools that we analysed and use in this Note, students average scores remained consistent across the years and between the two measures.

In addition to teacher-student interactions, effective teaching of content, and student engagement, we identified several features that are consistently found in these high performing classrooms; they are practices that teach metacognitive knowledge and strategies to students. We found that in both high and low-performing classrooms, most teachers emphasised teaching content and some teachers demonstrated efforts to build a positive classroom environment and student-teacher relationships. But teaching metacognitive knowledge and strategies was most evident in high performing classrooms; it also appears to be the "glue" of teaching that helps bond content knowledge and students' engagement to achieve high learning outcomes.

Teaching metacognitive knowledge and strategies

Metacognition, simply known as thinking about one's thinking, "focuses on the active participation of the individual in his or her thinking process" (Stewart and Landine, 1995, p. 17). Metacognition includes both knowledge about content of learning, as well as about oneself; and it refers to both employing cognitive and meta-cognitive strategies in learning. Researchers suggest that metacognition includes three domains: (a) knowledge about people (including about self and

[1] See DeJaeghere, Dao, Duong and Luong (forthcoming) for an analysis that examines the interaction among teachers' beliefs, curricular design, and practices in these same classrooms in Vietnam.

relating to motivations, emotions, cognitions, etc.), (b) knowledge about tasks (pre-knowledge of content, difficulty level, reasons for the difficulty level, etc.), and (c) cognitive and metacognitive strategies (Chick, 2013; Flavell, 1976; Pintrich, 2002; Tanner, 2012); There is an emerging body of literature on metacognition in the educational context in Vietnam. However, most of the research is either conceptual or focuses on learning strategies applied by students (see, for example, Hoang, 2017; Hoang and Phi, 2016), and little is on the impact of metacognitive teaching on student learning performance. Thus, understanding what teachers do pedagogically in classrooms to promote metacognitive knowledge and strategies among high achieving students can shed light on the mix of teacher practices that matter.

According to Ellis, Denton, and Bond's (2014) classification, five features of the learning environment that foster effective metacognitive learning include (a) engaging curriculum, (b) explicit instruction and modelling, (c) verbalising, (d) assessment integration, and (e) consistent practice. These features are similar to some indicators of the instructional support or pedagogical domains of several quantitative classroom observation methods, such as the Classroom Assessment Scoring System [CLASS] and the Stallings classroom observation instrument. Yet, capturing the nuance of them and how they support learning is less possible in quantitative studies. In the sections that follow, we focus on describing the last four features which are closely related to teachers' instructional design and practices (b, c, d, and e). We also provide examples of teachers' uses in high performing classrooms—through detailed description of their classroom practices and dialogue taken from videos and their interviews. An important point to note is that these metacognitive teaching practices are not discretely enacted; they are integrated with content knowledge and teacher-student interaction and emotional engagement. To illustrate these integrative practices, we briefly describe the teaching practices in a low-performing school and those in a high performing school to show the holistic nature of effective teaching, and the differences between these two cases.

Explicit instruction and modelling

Observations of class videos from high achieving classrooms show that teachers provided explicit instruction, including explaining the concepts and the problem clearly, and they gave comprehensible instruction for strategies to practice and think about the concepts and problem. Teachers also modelled their practice and thinking, explaining how they applied different strategies to understand and solve the task effectively.

For example, a Grade 9 math class learned about the relations of two circles. The teacher guided the students to analyse an exercise that asks to compare the radiuses and identify the centres of two overlapping circles. This activity took place after the teacher explained explicitly the new concepts regarding the relations of two circles and characteristics of the line connecting the centres of two circles. After individual work, students were asked to discuss the answers with friends in four groups. As a representative of a group presented his group's answers to the whole class, students from other groups were invited (by the student or the teacher) to give comments as to why they agreed with or refuted the process used to solve the problem. While students' debated the properties of the line connecting the centres of two circles, the teacher commented from time to time to clarify the reasoning of students' answers and to provide them with correct or incorrect ways of solving it. For instance, she acknowledged a "not-yet-correct" answer or explanation and said that "we will look at this [aspect] later." After this process, the teacher modelled solving the task on the board while confirming again students' correct and incorrect answers. She also clearly explained when and why to use the Pythagorean theorem, from which students could apply the strategy to identify the perpendicular bisector and square angle and understand the characteristics of the line connecting the circles' centres in order to solve similar but harder exercises.

Interviews with this teacher and other teachers who used similar practices indicate that they had a clear purpose of what they did and why they conducted a particular class activity to develop student thinking and not only teaching content. Teachers' purpose was to have students think independently and logically through explicit instruction of cognitive tasks and strategies involved, as a teacher said:

> "In my class, students are supposed to form thinking skills in geometry. If they work in groups, it is difficult for them to think for themselves or simply rely on specific prior knowledge or skills to solve the task. It [working in groups] would be possible for algebra, but in this Geometry class, I decided to go with the traditional way of having students listen to my instruction first [to be able to develop their independent thinking skill], then getting them to work with friends. (pre-lesson interview, 2017)"

Some teachers also noted explicitly during class sessions when certain metacognitive knowledge came up that supported their cognitive knowledge and strategies. For example, some math teachers highlighted useful strategies for grasping the requirements of the task or approaching a question in a math test, while some literature teachers showed different reading and writing strategies in learning a literary work. Observations of students in classes with teachers' explicit explanation and modelling of cognitive tasks and learning strategies show that students consciously understood the content and procedures of the lesson. As a result of these practices and learning this knowledge, students engaged deeply in the learning process, which could also account for their successful self-regulated learning and high learning performance.

Verbalising

Like the teacher in the math class above who modelled the thinking processes in solving the task, many teachers in high performing classes verbalised their thoughts while demonstrating their work. In this way, they also encouraged students to "think aloud" or engage in "self-talk" while working through a task. Observations of group work in some engaging classrooms show that students were interested in telling their peers about the steps they took or the reasons they chose a particular strategy to solve a problem. In fact, peer debate emerged as an important feature of some classes, notably those in which teachers had been trained in and implemented the VNEN approach/curriculum which focuses on competency development. In these classes, teachers guided the debates in which students actively discussed and exchanged ideas aloud with the whole class as they stood up presenting their answers. Students throughout the class, and not only those who presented, were invited to "speak up" and provide explanations for arriving at an alternative conclusion or counter-argument to a friend's answer.

In another literature class, the teacher explicitly modelled identifying figures of speech and figurative language in a poem as students tooks turns reading through it. Her verbalisations and modelling not only helped students understand what they were learning but also helped students know why they needed to know different figures of speech. Through modelling the "thinking aloud," the teacher highlighted "analytical thinking" as an important thinking skill and a strategy in approaching the task and to arrive at a correct answer. The teacher also explained in the post-lesson interview that she taught the students how to approach the exercise and be aware of the thinking process by articulating and "showing explicitly" (with the help of a projector) as she and the students worked through the problem in finding the used figures of speech (post-lesson interview, 2019). She also provided students the language to talk about their own cognition and learning of the poem with peers or with the teacher. For example, when verbalising the process in which she differentiated simile and metaphor when the poet compared the "naïve moon" with trees, she prompted the language that students should use to express their understanding of different figures of speech or particular rhetorical methods used in writing. This kind of "talk-aloud" and discussions about the concepts, and the process students used to identify the figures of speech, made their learning explicit and more enjoyable. Students' verbalisations were also used by some teachers as a way to assess what and how students learn, which is demonstrated further in the next section.

Assessment integration

Another feature in some high achieving classrooms that developed metacognitive thinking and strategies concerns the ways in which teachers designed and integrated assessment in the lesson. Interviews with the teachers indicate that most of them mentioned their plans of evaluating students' performance; but in high achieving classes, teachers applied diverse forms of assessments to both gauge learning and promote metacognitive knowledge and strategies in students.

Analysis of class videos shows that teachers in classes with better learning performance used well-structured peer assessment and guided reflection. For example, after students completed an assignment, individually or in a group, teachers tended to ask other students or groups to engage in thoughtful analysis of the answers. Instead of only checking if answers to tasks were right or wrong and moving to the next activity, as was done by some teachers in low achieving classrooms, students were encouraged to work backwards from the answer and think deeply about the process of producing it. In a Grade 8 literature class on rhetorical methods used in proverbs, the teacher invited the students to comment on their friend's answers, asking them to give specific feedback on incorrect answers. The teacher walked the class through the process of assessing the answer, a sort of rubric, by identifying features of terms of expression, such as "exaggeration" and "boasting." She provided questions for the students to determine how "exaggeration" is different from "boasting," given their commonalities. The teacher then provided a summary table of the concepts learned as well as the skills of reasoning to justify their critique and evaluate their performance through peer- and self-assessment.

Another way of integrating assessment in class that fosters metacognitive knowledge and strategies is through asking questions that require the student to reflect and clarify the content and how it is applied in practice. As shown in various examples in this Note, asking questions is a common practice that teachers used. But questions are used for different purposes to support thinking, beyond what is commonly referred to as rote-learning or call-and-response—repeating or responding to content knowledge from the text. For some teachers in high achieving classrooms, asking questions was used to evaluate student cognitive and metacognitive knowledge. A Vietnamese-literature teacher emphasised that she did not use random questions to elicit the correct answers, but purposefully asked a complete set of 'big and small questions' designed to know how much her students learned and to promote their thinking skills (pre- and post-lesson interviews, 2018). Her class, learning an essay on the detrimental effects of smoking, demonstrates that the questions she used included both closed and open-ended questions, ranging from general to specific to assess knowledge and support students' higher-order thinking including application, analysis, creative, and critical thinking skills. In some situations when the students appeared to be unsure or, alternatively, pretty sure of the answer, she paraphrased or asked a question in a way that provoked thinking more deeply about the issue under study or the task (see examples of questions in Table 1).

Table 1. Teachers' questions used to support students' higher-order thinking

Example questions	Teacher's purposes
Questions (at the beginning of the class) to review the previous lesson and lead in the new lesson on smoking: • How does nylon do harm to our life? • What have you done in practice after learning about Earth Day? • How do you see our environment can be harmed by other human activities?	Assess students' prior knowledge and application in real life and connect with new content
• What do you notice about the title of the essay? • What else do you see (in this paragraph)? • Why does the author use it (this way of expression)?	Assess students' reading skills; ask them to identify reading strategies in analysing the essay
• Do you agree or disagree with your friend's statement? • Do you want to add any more ideas?	Encourage self-assessment and peer assessment
• What is the evidence for this argument? How strong is it? • What is your point again? Can you explain with other expressions for it?	Ask students to evaluate the quality of the author's argument; ask to apply their reasoning in other situations (critical thinking)
• Does your idea apply in this situation? • Any other ways of answering the question?	Ask for additional/alternative answers (creative thinking)

Example questions	Teacher's purposes
• What are the risks of smoking for smokers and those who are around them? • Do you recall the description in the story "Lao Hac" in which the character is a smoker? How does he feel when he smokes? How does he look? • To what extent does smoking affect other people? Is it also one of the reasons that lead to, for example……? (the teacher let the class complete the questions with various answers). • So how do you see the negative effects on the whole society? What about the solutions to the problem of smoking? What advice do you give to your family members who smoke?	Connect with knowledge students learned in prior classes Assess how students apply learned understanding and skills in real life

While some questions were shown on the overhead screen, most of the questions were asked directly by the teacher. Weaved into class dialogues, or in the words of Pintrich (2002), "informal assessment conversation" (p. 224), these questions in effect helped students reflect on their understanding and reasoning skills. Using this range of questions and dialogues also occurred in other high performing classes that we observed. In these classes, formative assessment drawing on inquiry as a teaching method led to deep learning because students were given opportunities to discover new concepts and learn how to connect these with the knowledge they knew, the strategies they learned, the context where they were located, as well as with themselves as thinkers, learners, readers, and writers.

Consistent practice

Providing opportunities for students to consistently practice metacognitive thinking is proved to be effective to enhance learning outcomes (Scharlach, 2008). Almost all teachers shared in the interviews that they used consistent instructional practices relevant to the lessons' objectives, such as a review lesson, a practice lesson, or a lesson for new content knowledge. Yet, it was the repeated use of practice that developed metacognitive thinking that seemed most beneficial to students. In this regard, observations of the same teachers in classrooms over two or three years showed that these teachers in schools with high performing students maintained consistent use of metacognitive thinking and strategies within a lesson period and across lessons.

A common practice of these teachers was to give more instruction at first to remind students of old knowledge, form new knowledge, and suggest strategies needed to understand the new knowledge. Having understood the connections between prior and new knowledge, students could then apply the knowledge and strategies to do exercises on their own. By repeatedly selecting suitable strategies to apply their knowledge to new content, students could solidify their metacognitive strategy uses.

An example of this consistent use of strategies can be observed from geometry lessons of a math teacher who participated in our research for three years. He always asked students to predict the connection between previously learned and new knowledge. Specifically, in a lesson about a lozenge, a special kind of parallelogram which students had learned about the previous lesson, the students were required to give their prediction about its properties. The students were able to do this based on knowledge they had about parallelogram's general properties. This practice not only helps students recall previously learned knowledge but requires them to think about and use strategies for identifying similarities and differences between cases. These strategies of predicting new knowledge from prior, and thinking about similarities and differences, is critical for building on prior knowledge and applying knowledge to new situations.

Teaching differences in low and high performing classrooms

A low performing class

Though teachers in lower performing classrooms also explained the content or new knowledge in detail, their instructions were not always clear and understandable. Some teachers did not attempt to share learning strategies through explicit teaching, modelling, and class discussions, so it was difficult for students to learn. Furthermore, many teachers did not encourage students to be aware of their own thinking and learning, and the strategies they could use to apply new knowledge to problems or new content. Teachers thought they were promoting self-study or student-centred learning when they frequently asked students to "study by themselves" and do a considerable amount of homework.

To illustrate how the above tools for teaching metacognitive thinking and strategies were not as effectively taught, we now describe an example from a low performing class that shows how the teacher tended to be occupied with transmitting textbook knowledge to students without these kinds of thinking strategies. In a Grade 9 math class, the teacher spent most of the class time lecturing with frequent checking/looking at the textbook or syllabus for the content. While being over-reliant on the teaching materials for subject knowledge, this teacher did provide quite clear explanation of and verbalisation for solving the task. However, she did not model the thinking process for solving the problem. She rarely used questions effectively for assessment, nor did she encourage verbalisation of one's thinking. As such, this was a quiet class and few students raised their hands when asked. Sometimes, the teacher checked their understanding or confirmed the correct answers and the whole class answered "yes." Clearly, this response did not require the students to think about what they were learning, nor did the teacher really understand what they were learning. Some students looked serious yet confused as they gave incorrect answers; and the teacher never queried about their thinking or further explained why they got it wrong. Likewise, when checking for correct answers, the teacher did not give detailed feedback regarding the problem-solving process or any alternative to arriving at a given answer.

However, the teacher assumed that the students would be able to acquire metacognitive knowledge on their own, or they simply would be unable to think this way. This is evidenced in the interview in which she explained that some students did not develop self-study skills themselves because they were "lazy," "unable to read and prepare the lesson at home," "don't know to take notes," "couldn't summarise the knowledge," and "had poor collaboration skills" (post-lesson interview, 2019). Only one time during the lesson did she show her class how to identify a linear equation with slope/intercept with the formula y=ax+b by checking the location of the drawing of the graph of a function. Although this is a good learning strategy, she framed it as a technique that would serve students to get a high score rather than a strategy to deeply understand different types of functions or learn math effectively.

In this sense, when not being provided with strategies and opportunities to reflect on whether or how much they—as individual learners—were truly learning, students seemed to find learning to be difficult and opaque. Some tried to figure out how to learn effectively by themselves, but this may impede their progress or be ineffective.

A high performing class

We now present the analysis of a typical case in which the teacher demonstrated almost all features we have analysed above. Specifically, the teacher used multiple instructional practices to successfully deliver the content knowledge, teach for metacognition, and connect with students emotionally, making his math lessons one of the most enjoyable and engaging classes that we observed.

This is an experienced educator who had more than 25 years in the profession as a school leader and a teacher. As a math teacher, he participated in our study for three consecutive years. He demonstrated a sound command of content knowledge and experience in math education. Interviews before and after class observations indicate that he had a carefully prepared lesson plan with clear objectives. Nevertheless, one of the important factors that made his class successful lies in his flexible teaching approach to ensure students were learning; he included diverse teaching methods and used multiple teaching aids in the lesson to foster learning for all students. Although he reported that he did not receive significant training for teaching VNEN (a programme focused on student-centred learning and competencies), he was able to handle teaching the VNEN curriculum with confidence, partly because he "studied by himself about VNEN" and understood its philosophy (pre-lesson interview, 2018). He was also aware of the limitations and advantages of each teaching approach, thus making use of different approaches and activities in a given situation and for particular groups of "students of different abilities and interests" (post-lesson interview, 2018). More interestingly, while the majority of

teachers in our study (and their students) showed a rather high degree of dependence on textbooks, this math teacher purposefully asked the students not to use textbooks (and calculators) at many points during class. This not only demonstrates the teacher's competence in delivering solid math knowledge that he possessed but also his effort, as he explained in the post-lesson interview, to assist students in effectively recalling or connecting with what they already learned rather than "relying on textbooks" (post-lesson interview, 2018).

With clear objectives regarding both content and learning how to learn,[2] this teacher helped students think for themselves, independently from textbooks, and apply various learning strategies. In addition to explicit explanation and frequent verbalisations, he also modelled the thinking processes in solving a math problem. In this way, he not only facilitated students to gain content knowledge and specific competencies in math but also metacognitive knowledge to be able to apply the learned knowledge into practice.

During class, this teacher also checked in with the students if they found the exercise to be challenging or easy, if they understood the instruction, what new knowledge they had learned, and how the skills they learned would be put into good use in exams. Unlike many teachers who spent most of their teaching time standing/moving in front of the class, this teacher usually came close to individual students when they were working on tasks or answering the questions. He not only commented on the answers they provided but also gave brief feedback on how the students could have solved the task faster or come up with a better answer. In this way, the teacher could gain a better understanding of each student and adjust instruction to help the whole class (of around 25 students) to "reach similar levels of learning and thinking" (post-lesson interview, 2019).

Another factor that contributes to the high level of engagement in his math classes is the positive environment that the teacher strove to create. Class video analysis shows that his classes often demonstrated an engaging learning environment with close and positive teacher-student relationships. When asked to describe his teaching style, this teacher simply said: "friendly," yet he added "[I maintain] a friendly climate for the students to feel comfortable and find learning enjoyable, which does not mean at the expense of being serious" (pre-lesson interview, 2019). Analysis of student videos also indicates that students in his classes enjoyed his pleasant jokes, for example, when he complained about a noisy class ("My ears are exploding!"), or his humorous similes, for example, as he compared the students' lack of attention to the presumption of a math task with the way "a student forgets the 'basic conditions' (such as breakfast, uniform…) when going to school." Since the reminder for such an important learning strategy was made in a way to be easy to remember, the students found learning not only easier to follow but also exciting to explore.

Although the teacher did not use reflection formally and extensively in the recorded classes, the homework checklist the went through with the class to wrap up the lesson is a good practice to foster metacognitive knowledge, particularly in relation to self-study as one of the key learning outcomes in most Vietnam's schools. Despite some minor areas for further improvement in terms of teaching practices,[3] the lessons of this math teacher achieved high student engagement and learning, as both observed in daily classes and on the learning outcomes for the class.

In other words, with instructional practices designed for specific learning objectives, appropriate metacognitive instruction, and the positive learning environment, the teacher was able to engage the students in the lesson, contributing to their high performance in the subject that he believed "[his] students should love" (post-lesson interview, 2019).

Conclusion

Although research particularly in high income countries indicates a positive link between metacognitive knowledge and student learning (e.g., Gulikers, Bastiaens, Kirschner, and Kester, 2006; Michalsky, Mevarech, and Haibi, 2009), how Vietnamese teachers pedagogically promote learning in their classrooms has remained a blackbox. This Insight Note illustrates how teaching metacognitive knowledge and strategies as integrated with other cognitive and emotional aspects of learning can impact student engagement and contribute to high learning outcomes.

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[2] For example, to develop cognitive competencies in math including calculating, recalling prior knowledge, making inferences, and metacognitive competencies such as higher-order thinking skills, self-study, self-assessment and cooperation.

[3] For example, the teacher should not use the ruler in communicating with students (also see Tanaka, 2020).

It is important to note that our study also had some contradictory findings where teachers used these strategies to teach content, metacognitive thinking and strategies, and engaged with students, but the average learning outcomes for students remained low. This indicates that good teaching, which considers the cognitive, metacognitive, and emotional aspects of learning is not always enough. As other research has indicated, factors related to the individual students, household, school, and community can also collectively account for differences in learning performance in various educational contexts (Aturupanea, Glewwe, and Wisniewski, 2013; Hanushek, 1997; Wößmann, 2003). Still, when it comes to researching the critical role of high quality teachers and teaching, this Note offers insight into the specific pedagogical practices used in classrooms with high learning outcomes.

Implications for educators and policymakers

In a recent RISE Insight Note, Belafi, Hwa, and Kaffenberger (2020) indicate that children in many countries lack foundational skills even after many years in school. They suggest that education systems need to prioritise Universal, Early, Conceptual and Procedural Mastery of Foundational Skills for children to engage in future learning and fully participate in society and the workplace as adults. Foundational skills are critical, and this analysis shows that learning conceptual and procedural aspects of new knowledge requires teaching metacognitive thinking and strategies. But too often, policymakers and educators are focused on teaching the “basics”—often limited to basic content mastery, which leads to critiques of rote learning and memorisation. So what are some implications that this analysis of teaching metacognitive knowledge and strategies has for improving teaching for higher learning outcomes?

First, this study examines teaching practices at the lower secondary level, a point in which many students drop out of school, possibly because learning content knowledge is not the expectation at this level. Students need to employ higher-order thinking at this level. Therefore, curriculum and teacher training needs to attend to metacognitive knowledge and strategies. Policymakers, curriculum developers, and teacher educators need to engage with a more expansive understanding of teaching and learning beyond concerns for the content in textbooks and multiple choice exams to test knowledge. It requires attention to teachers’ pedagogical practices that can foster metacognitive thinking and strategies. While the ones discussed in this Note are not exhaustive and identified in high performing classes, we recommend all teachers in Vietnam as well in other contexts attend to and explore metacognitive practices appropriate to their own teaching conditions. Future research therefore should examine more closely why teachers in low performing classes were unable to enact metacognitive practices, and what the associated constraining factors are that prevent them from doing so.

Second, considerable reform efforts are directed at teachers to learn and enact learner-centred pedagogy in order to improve learning (Schweisfurth, 2011; 2015). This often takes the form of teaching certain pedagogical activities, such as group work or problem-based learning. In Vietnam, this has taken the form of using these strategies as well as creating self-study as a key learning outcome or competency in the new curriculum. But student-centred learning is more than using these activities, which, in some cases, when used poorly do not foster learning. A focus on metacognitive learning and strategies illustrates the kind of thinking necessary for students to engage in their ‘own’ learning. The examples discussed in this Note show that teachers’ explicit instruction of concepts and modelling the thinking process (sometimes regarded as lecturing or teacher-centred learning) is critical for student learning. Teaching metacognitive thinking and strategies through questions for reflection and on-going assessment help students develop a solid understanding of tasks, of how to apply prior knowledge and learning strategies properly, and how to assess their own strengths and weaknesses as learners.

In sum, improving teacher quality for achieving high learning outcomes needs to open up the black box of teaching practices in the classroom, and move beyond general ideas, indicators, and practices related to student-centred learning, student engagement, and competencies to foster specific ways that students learn to think and employ strategies in their learning. Supporting teachers to develop teaching practices that integrate content with metacognitive thinking and strategies goes some way toward fostering high levels of learning.

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