



Teaching in Focus #37

A deep look into teaching:
Findings from the Global
Teaching InSights video study



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A deep look into teaching: Findings from the Global Teaching InSights video study

- This innovative study provides a rich and detailed picture of teaching and learning using a pre-post design and drawing upon a range of measures, including observation, questionnaires, tests and teaching materials, for 700 classrooms in 8 different countries and economies.
- The study found that, overall, teachers managed the classroom well and provided students with some social-emotional support and reasonable instructional quality. The quality of teaching was related to students' achievement, self-efficacy and interest in mathematics.
- Interestingly, there was no common approach to teaching the same topic across the eight participating countries and economies, and considerable variation in how teachers approached students' mistakes and challenges, underlining how the study could continue to provide insight into teaching at a global scale.

Around the world, researchers, policy makers, parents and children all agree that teachers matter to student outcomes. However, we are only beginning to understand what makes a difference in terms of quality teaching. Teaching and learning are complex processes that challenge the skills and abilities of both teachers and learners. Teachers must know how, when, where and why to use specific teaching practices related to the subject matter to meet learners' needs and move them forward.

The OECD's Global Teaching InSights: A Video Study of Teaching uses new research methods to shed light more directly on teaching and learning processes, which are key to improving education at scale (Box 1). The study looked into three domains: classroom management, social-emotional support and instructional practices in the classroom, as well as students' opportunities to learn the content specified in curricula across schools. It covered a diverse group of eight countries and economies: BíoBio-Metropolitana-Valparaíso (Chile), Colombia, England (UK), Germany (a convenience sample of volunteer schools), Kumagaya-Shizuoka-Toda (Japan), Madrid (Spain), Mexico and Shanghai (China). The study examined how all these aspects of teaching related to students' achievement, self-efficacy and interest in mathematics.

Box 1. The OECD Global Teaching InSights study

The study is unique in the amount and types of data it collected on teaching and the methods it used to analyse them. To enhance the comparability of teaching and learning across 700 classrooms in 8 countries and economies, the study chose the unit of quadratic equations in secondary school mathematics as a focus. Two lessons were videotaped and lesson materials were collected to obtain direct evidence from the classroom, and both videotapes and materials were coded following common and standardised protocols. Teachers and students filled out questionnaires on their beliefs, practices and perspectives before and after the quadratic equations unit, and students were also tested on mathematics on both occasions in order to measure their learning gains.

What does teaching look like? What did we learn?

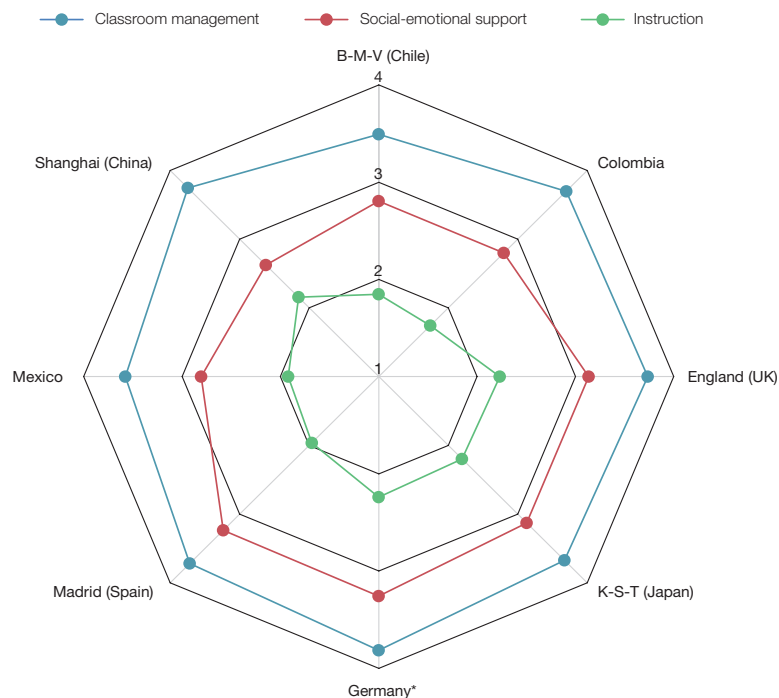
The findings provide an overall picture of teaching quality observed across all the participating countries/economies. Data from the videotaped lessons allowed an observation score to be given, ranging from 1 (low) to 4 (high). The study found that teachers managed their classrooms well (mean scores of between 3.49 and 3.81), gave students some social and emotional support (mean scores of between 2.62 and 3.26), and provided them with reasonable instructional quality (mean scores of between 1.74 and 2.24). Figure 1 shows the average score for each participating country or economy for each domain.

Well-managed and organised classrooms

Whole-class instruction (frontal teaching) was observed in over 88% of lesson segments in each country/economy. Teachers often switched efficiently between speaking to the class from the front of the room to supervising students as they worked individually at their desks. For example, in England (UK), Kumagaya, Shizuoka and Toda (Japan) – hereafter “K-S-T (Japan)” – and Shanghai (China), the majority of lesson segments combined frontal teaching with individual seatwork activities. In contrast, student collaboration – whether in pairs or in small groups of three or more students – occurred in less than 22% of lesson segments across participating countries/economies.

Teachers managed their classrooms well in the context of whole-class instruction. The average classroom had very well-organised and efficient routines in place. Teachers sometimes or frequently engaged in monitoring student behaviour. When disruptions occurred, virtually all teachers handled them quickly and effectively and, while students' focus on mathematics was interrupted momentarily, no significant learning time was lost. In questionnaires, teachers and students agreed that classrooms were very well managed.

Figure 1. The quality of teaching practices varies, by domains of practice



Note: The figure shows domain scores, ranging from low quality (1) to high quality (4).

*Germany refers to a convenience sample of volunteer schools.

Source: OECD, *Global Teaching InSights Database*, <https://doi.org/10.1787/20d6f36b-en>, Figure 8.1, <https://doi.org/10.1787/888934188272>.

Students received some social-emotional support

Teachers' and students' interactions within classrooms were respectful, with few negative interactions, such as threats or degrading comments, but nine out of ten classrooms observed were not frequently warm and encouraging. Nearly all the teachers surveyed believed that they provided students with support for learning and had a good relationship with them. Most students also agreed, but teachers tended to perceive the social-emotional environment more positively than students. One notable area for greater attention is how teachers dealt with students' struggles, mistakes or misconceptions. These provide rich learning opportunities – both for understanding the subject matter more deeply and for developing persistence. Yet, teachers only tended to work with students to help them better understand their errors and persist with their mathematical struggle in less than half of the countries and economies. In most participating countries and economies, teachers tended to ignore students' errors or treat them superficially, giving students fewer opportunities to develop persistence.

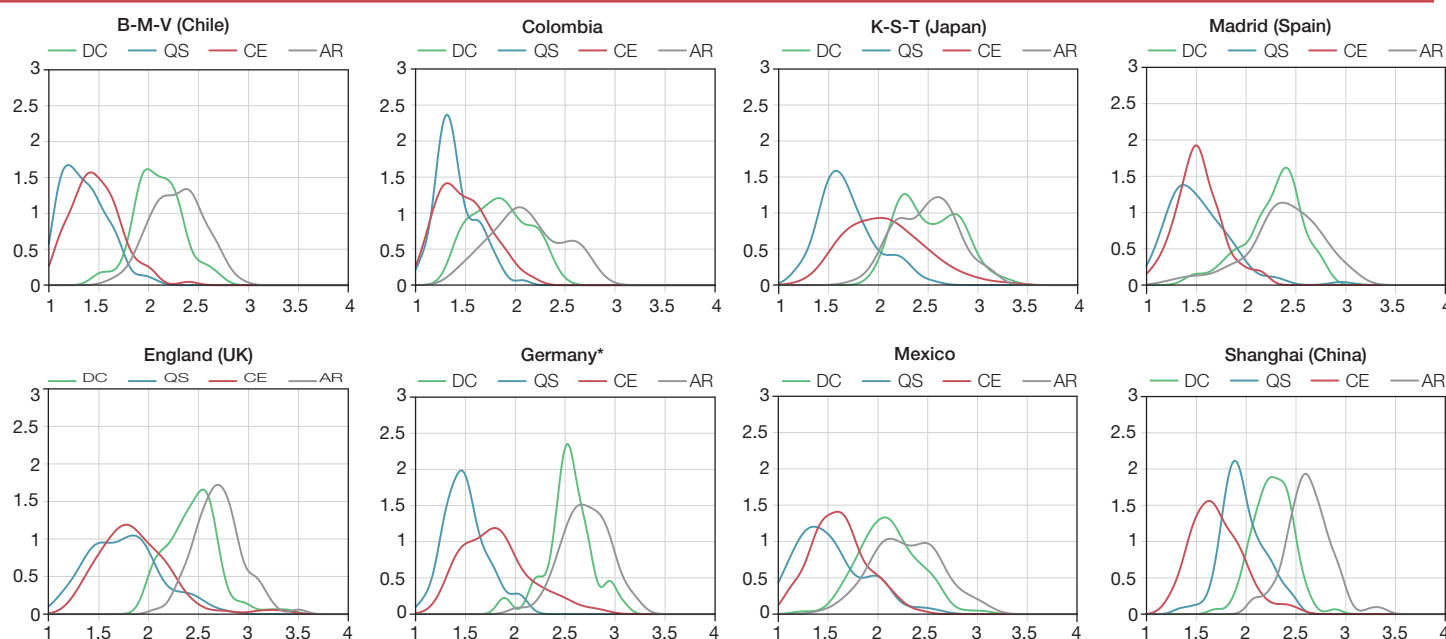
The quality of instructional practices varied

To capture the complexity of the quality of instruction, mathematics instruction was divided into four types of practices: teaching practices that supported classroom discourse, subject matter practices, students' cognitive engagement and teachers' assessment of and responses to student thinking. Figure 2 shows the distribution of scores for each of these sub-domains for each country/economy. It is worth highlighting that the quality of practices in Shanghai (China) was quite similar from classroom to classroom, while the level of quality of practices differed considerably across classrooms in other countries.

The detail and depth of classroom discourse varied within and across countries/economies. Students were regularly asked to recall information and state answers, or to summarise and apply rules and procedures. Sometimes students participated in the classroom discourse by contributing detailed thinking. However, with the exception of Shanghai (China) and K-S-T (Japan), lengthier, deeper explanations were observed in less than 25% of lessons.

Teachers regularly assessed and responded to students' thinking. During lessons, teachers asked questions that elicited a moderate amount of student thinking. Feedback interactions between students and teachers were brief and focused on the accuracy of answers and procedures. Few teachers (between 2% and 18% per country/economy) provided feedback that was thorough and focused on why students' thinking was correct or incorrect.

Figure 2. The types of practice vary across classrooms
Distribution of classrooms, by the mean instruction sub-domain scores



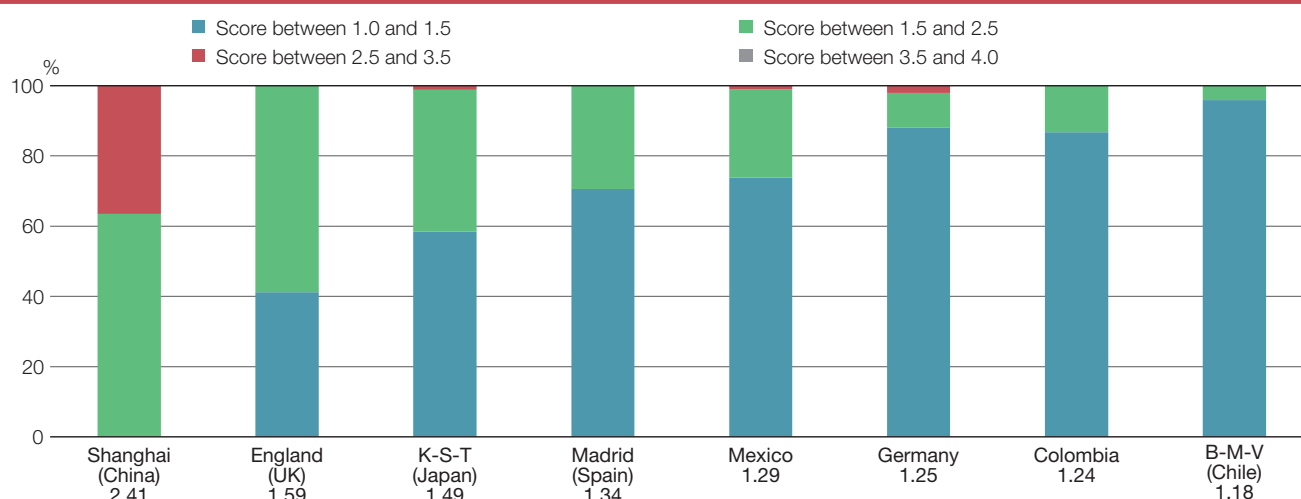
Note: DC: observed quality of discourse; QS: quality of subject matter; CE: cognitive engagement; AR: assessment of and responses to student understanding. This figure includes smoothed histograms of classroom scores using an interval size of 0.02 score points. The y-axis is density. The more peaked the curve, the more classrooms have mean scores concentrated around a few score points (i.e. the more densely populated is that range under the curve).

Source: OECD (2020), *Global Teaching InSights: A Video Study of Teaching*, <https://doi.org/10.1787/20d6f36b-en>, Figure 5.2, <https://doi.org/10.1787/888934186828>.

Students had limited opportunities to connect the mathematics to real-world contexts or to explore patterns in the mathematics (Figure 3). For example, students' understanding, handling or application of quadratic equations was sometimes supported by graphs or drawings, but students rarely made connections among the different representations or aspects of mathematics.

Teaching materials and classroom interactions provided students with frequent opportunities to develop mathematical fluency through repetitive practice. However, while there were exceptions, students were not asked to frequently engage in cognitively demanding activities. Students seldom used multiple approaches to solve problems, articulated the rationale for mathematical procedures and processes, or used technology to enhance their conceptual understanding of the mathematics (Figure 4).

Figure 3. Students had few opportunities to notice patterns and make generalisations
Percentage of classrooms by mean patterns and generalisations score



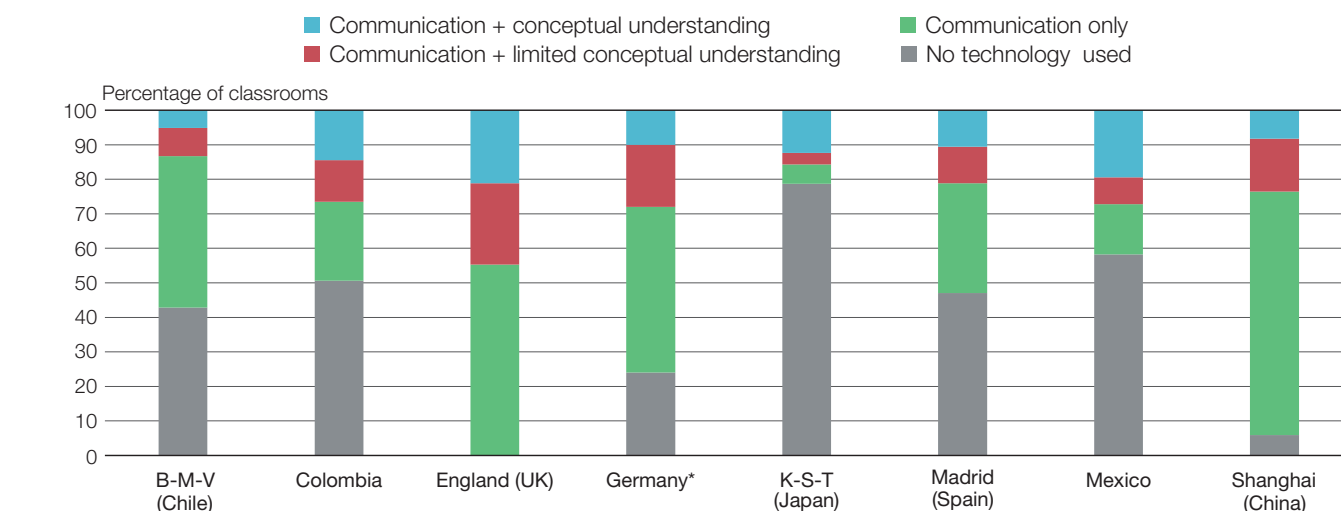
Note: The country/economy mean score is shown below the country/economy name. The raw score is based on observers' video ratings that range between 1 and 4, with 1 "not requiring students to look for patterns or make generalisations" and 4 "requiring students or teachers to look for deeper mathematical patterns or make explicit generalisations about deeper mathematics".

*Germany refers to a convenience sample of volunteer schools.

Countries and economies are ranked in a descending order by the mean classroom scores of the quality of patterns and generalisations.

Source: OECD (2020), *Global Teaching InSights: A Video Study of Teaching*, <https://doi.org/10.1787/20d6f36b-en>, Figure 5.5, <https://doi.org/10.1787/888934186885>.

Figure 4. Little or no use of technology to enhance learning
Percentage of classrooms by type of technology used



*Germany refers to a convenience sample of volunteer schools.

Source: : OECD (2020), *Global Teaching InSights: A Video Study of Teaching*, <https://doi.org/10.1787/20d6f36b-en>.

Teaching made a difference to students' mathematics-related interest, self efficacy and achievement

Social-emotional support and classroom management were significant predictors of students' personal interest and self-efficacy towards mathematics in half of the countries/economies, even after accounting for students' pre-unit scores and other background characteristics. The quality of instruction was associated with student achievement in five countries and economies, but this relationship was only significant in one country after accounting for students' background and prior achievement.

Do teachers teach differently?

There was no common approach to teaching quadratic equations, neither across nor within countries. The amount of time that should be spent on the topic, according to curricula and textbooks, varied from 6 lessons to more than 15 lessons, pointing to differences in teaching and learning expectations between countries. The actual time spent on the topic as reported by teachers was generally lower than the expected time, and varied considerably across classrooms. There were also differences in the mathematical methods students learned. Most students used graphical representations in addition to the algebraic formulae and procedures to solve quadratic equations, except for students in K-S-T (Japan) and Shanghai (China). There were also differences in when specific methods were introduced, e.g. at the beginning of the unit or as an application in the end of the unit.

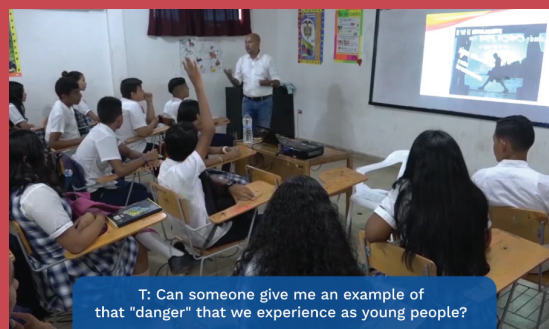
These differences on how the same topic was taught underline the importance of furthering our understanding of teaching at an international scale. To facilitate peer learning and a global dialogue around teaching, the OECD has launched the Global Teaching InSights platform (Box 2).

Box 2. Taking classroom observation to a global scale

Observation opens up powerful opportunities for professional reflection. It holds up a mirror to one's own practice and asks teachers to ponder how they would approach a similar challenge or objective in their own classroom. It also makes new ideas tangible and can spark innovation and creativity.

The new OECD Global Teaching InSights platform provides a space for teachers to observe and learn from each other on teaching at a global scale. The platform provides an observation tool and classroom video examples, drawn from the study, to illustrate teaching practices in a tangible and authentic way and to spur global dialogue and collaboration around teaching. Visit www.globalteachinginsights.org to find out what teaching looks like and to share your own insights.

Source: www.globalteachinginsights.org



The bottom line

Supporting every teacher to improve their practice is important for raising students' cognitive and non-cognitive outcomes. The findings of the Global Teaching InSights study highlight areas where teachers excel, as well as where they have opportunities for professional growth. For instance, while most teachers manage their classrooms skilfully, they could benefit from paying greater attention to how to provide students with stronger social-emotional support, promote student collaboration, engage in meaningful and in-depth feedback, and provide high-quality instruction overall. Considering the wide variation observed across classrooms, the study suggests that targeted professional development initiatives are likely to be more effective than a one-size-fits-all approach.

Looking outwards to different countries and contexts can be valuable. The study found a world of difference in how just one topic is taught. This points to the importance of sharing practice and building on each other's strengths both at the local and international level. Through its unique methodology, the study shows that it is possible to examine teaching directly at a global scale and highlights how much researchers, policy makers, teachers and educators alike stand to gain from doing so.

Visit

www.globalteachinginsights.org and www.oecd.org/education/talis/

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OECD (2020), *Global Teaching InSights: A Video Study of Teaching*, OECD Publishing, Paris, <https://doi.org/10.1787/20d6f36b-en>.

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