Executive Summary

The COVID-19 pandemic has demonstrated yet again how vital a strong and updated knowledge base is for tackling transformational challenges. Constant changes, including abrupt transformations, are a likely scenario for the future of education. As societies and technologies constantly evolve, teachers must innovate teaching methods and pedagogies. Teachers need to be empowered to keep up with these changes and to use educational transformations to innovate teaching. For this, teachers need to be owners of deep professional knowledge, who constantly update their knowledge and skills.

Teaching as a Knowledge Profession: Studying Pedagogical Knowledge across Education Systems explores professional knowledge, in particular teachers' general pedagogical knowledge, as a resource for mastering the challenges of teaching in the 21st century. It also discusses policies and practices that are aimed at improving the knowledge base of the teaching workforce. The publication underlines the importance of using data to guide such improvement efforts and the particular value of international surveys of teacher knowledge. The OECD Teacher Knowledge Survey (TKS) assessment module will focus on teacher knowledge, providing an innovative theme and set of indicators for the next cycle of the Teaching and Learning International Survey (TALIS). In support of this challenging endeavour, the publication also includes proposals for measuring this knowledge across countries using cutting-edge methodologies.

Studying pedagogical knowledge as a main pillar of teacher professionalism

The status of teaching as a profession has long been under scrutiny. There are, however, convincing arguments for considering teaching a full profession with teachers' pedagogical knowledge as its main pillar (**Chapter 1**). Teaching is in fact, the mother of all professions. It is the starting point for successful professionals, engaged citizens and influential leaders. Teachers are also key agents of educational equity and inclusion. To fulfil these roles, teachers need to be learning experts who base their everyday practice on a regularly updated and integrated knowledge base, informed by research and practice.

Education systems have enacted various policies and reforms but ensuring a solid and updated knowledge base among the profession at large remains a concern for many education systems. The new OECD Teacher Knowledge Survey (TKS) Assessment Module will collect international comparative data on teacher knowledge in the next cycle of the Teaching and Learning International Survey (TALIS), providing valuable insights for policy makers, practitioners and researchers (**Chapter 2**).

Knowledge for teaching in the 21st century

The pandemic-induced school closures have once more highlighted not only the crucial and irreplaceable role of teachers in education but also the particular challenges associated with teaching in the 21st century: an effective use of digital technologies (**Chapter 3**) and ensuring an inclusive and equitable learning experience for an increasingly diverse student body (**Chapter 4**). There is no doubt that tackling these challenges requires professionalism from teachers, in particular a strong body of knowledge to draw from in their daily work.

Different approaches to measure teachers' technology- and diversity-related knowledge and skills exist, which come with different strength and limitations, especially for an international study on teacher knowledge. These knowledge and skills need to be explored in the broader context of the national and school context as well as teachers' attitudes and instructional practices. The embedded nature of the TKS Assessment Module into the broader context of the well-established TALIS study allows for this contextualisation.

Bridging the theory-practice gap: Exploring and supporting research-based practice and the context-adequate use of knowledge in schools

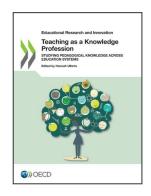
A major barrier to the use of scientific knowledge and research evidence is the "theory-practice gap": Teachers struggle to apply the theories, principals as well as teaching and learning approaches acquired in training into their classrooms. This is particularly visible for novice teachers transitioning from initial teacher education to schools (often referred to as the "practice shock").

To draw on research and knowledge in their practice, teachers need practice-based knowledge and situation-specific skills. Measuring such knowledge and skills requires contextualised measurements (**Chapter 5**). To learn about the context-adequate use of research and knowledge, education systems have provided teachers with opportunities to probe knowledge in practice, reflect on their teaching and to receive expert guidance (**Chapter 6**). Understanding differences in teachers' practical knowledge and skills requires a comparable measurement of the opportunities offered to teachers in different systems for aquiring and improving their pedagogical knowledge.

Pushing forward research and policy agendas and strengthening the knowledge base

With the push for evidence-informed education policies and practices, the interest in researching teachers has increased. In light of the increased survey burden and teachers' limited time for extra tasks, innovative testing designs such as multidimensional adaptive testing (MAT) become more important (**Chapter 7**). Such designs help reduce the length of teacher surveys and optimise the estimation precision and difficulty level of assessments, which is key for maintaining the test-taking motivation of participating teachers high. A Monte Carlo simulation study demonstrates how the use of such a design for the Teacher Knowledge Survey (TKS) assessment module could lead to a substantial increase in test efficiency.

Studying teaching as a knowledge profession, especially in an international survey, is as important as it is challenging. This publication summarises the existing research on key topics relating to the study of teacher knowledge and provides many suggestions and ideas to make such a challenging endeavour a success. There are important takeaways from these discussions but more research is needed to understand the complex nature of the knowledge teaching in the 21st century required in education systems around the globe (**Chapter 8**). In the end, the success of any research endeavour is also determined by the contributions made to improving policy and practice. Research on teacher knowledge can be used for informing teacher policy and strengthening professional exchange and knowledge-based practice in schools. Tackling these issues requires enormous efforts from everyone: researchers, policy-makers and practitioners. Given the importance of a strong knowledge base of teachers for the well-being and thriving of students and societies, the effort is worth it.



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