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POLICIES TO SUPPORT TEACHERS' CONTINUING PROFESSIONAL LEARNING: A CONCEPTUAL FRAMEWORK AND MAPPING OF OECD DATA

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By Luka Boeskens, Deborah Nusche and Makito Yurita

This Working Paper has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.

Deborah NUSCHE, Senior Analyst, deborah.nusche@oecd.org (+33 (0)1 45 24 78 01);
Luka BOESKENS, Analyst, luka.boeskens@oecd.org (+33 (0)1 45 24 75 84);
Makito YURITA, Analyst, makito.yurita@oecd.org (+33 (0)1 85 55 45 48).

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Table of Contents

Tables

Figures

Boxes

Acknowledgements

Abstract

While teachers' initial education is key to ensuring that new teachers are prepared for their work, it is only one piece in the continuum of teachers' professional growth. Continuing professional learning is vital for teachers to broaden and deepen their knowledge, keep up with new research, tools and practices and respond to their students' changing needs. It also plays a key role in building collaborative school cultures and supporting the collective improvement of the teaching profession. While the importance of continuing teacher learning is widely recognised, building efficient, equitable and sustainable professional learning systems is far from trivial. The OECD Teachers' Professional Learning (TPL) study seeks to support the development of effective TPL policies and practices in schools and school systems. This paper proposes a theoretical and analytical framework for the study, systematically maps available OECD indicators to this framework and identifies information gaps and areas for future comparative work.

1. Introduction

Effective teaching is at the heart of successful education systems, and there is growing recognition that teachers' professional learning (TPL) is critical to foster such teaching. Professional learning enables teachers to develop the knowledge, skills and practices necessary to be effective educators, support their peers, contribute to the collective improvement of the profession and gain the trust, status and self-efficacy to carry out their work with a high degree of professionalism.

While the selection into the teaching career and teachers' initial education are key to ensuring that new teachers are competent and prepared for their work, initial preparation alone cannot prepare teachers for all of the challenges they will face during their career. Continuing professional learning is therefore vital for teachers to refresh, develop and broaden their knowledge, and to keep up with changing research, tools and practices to respond to students' needs.

For school systems, continuing professional learning is critical to complement teachers' initial preparation, continue improving the quality of teaching and learning, and retain effective staff over time. The growing diversity of learners and learning needs, the increasing use of information and communication technologies (ICT) and the changing requirements of the modern workplace all demand that teachers continuously update their knowledge and skills. A lifelong learning approach to TPL that connects initial teacher preparation (ITP) and continuing professional learning (CPL) systems is therefore essential.

While the importance of effective teacher learning is widely recognised, building efficient, equitable and sustainable TPL systems is far from trivial. For example, evidence from research suggests that professional learning has the potential to be more effective when it involves a wide range of formats (Jensen et al., 2016[1]; Hoban and Erickson, 2004[2]). However, the latest data from the OECD's Teaching and Learning International Survey (TALIS) reveal that, while a large share of teachers participate in courses and/or seminars, teacher participation is still low for other types of learning that use more teacher-centred and collaborative formats (OECD, 2019[3]).

Likewise, many schools have yet to embrace a culture of collaborative learning and to build the structures necessary to sustain it. In many contexts, teachers are still working in relative isolation from each other with limited opportunities for collaboration. Creating a school culture that stimulates peer observation, constructive feedback and mentoring or coaching structures requires skilled pedagogical leadership at the school level. Moving towards a culture of continuous professional growth also has profound implications for the teaching profession. It calls for policies and school organisations that create the conditions for teachers to embrace a professional growth mind-set, to actively shape their own learning process and to create learning opportunties for themselves and their peers. Recognising teachers' self-initiated efforts and engagement in professional learning is an important part of such policies. The active role of teachers in the learning process, both individually and collectively, is at the heart of the TPL study's vision for "professional learning" (see Box 3.1).

At the system level, reforming TPL systems requires effective system leadership and collaboration with different groups, not least given the complexity of TPL systems and the wide range of stakeholders that co-construct them. These include not only governments, schools and teachers, but also teacher education institutions, research organisations, teacher unions, professional associations, private actors and civil society. For a sustainable improvement of TPL systems, these stakeholders need to work together as actors to reflect

on, develop, evaluate and reform practices, as well as to monitor the quality of ITP and CPL and create active feedback loops to drive continuous improvement.

The OECD Teachers' Professional Learning (TPL) study seeks to help countries in addressing these challenges and to support the development of effective teacher learning systems at both the system level and the school level. Following an OECD study on initial teacher preparation completed in 2019 (Annex A), this paper sets out a proposed theoretical and analytical framework to study teachers' continuing professional learning. It also systematically maps available OECD indicators to this framework and identifies information gaps and areas for future comparative work. Annex A situates the TPL study within the OECD's wider work on teachers and teaching.

2. Background: Context and trends

A number of contextual developments and trends have increased the importance of teachers' continuing professional learning for policy makers in many OECD countries. While some of these trends have given rise to challenges that TPL systems are expected to address, others have created new opportunities that TPL systems can capitalise on. A selection of these trends and developments are discussed below.

2.1. Changing learning objectives and student needs

Teachers need to be prepared to respond to changing learning objectives and student needs, which affect both what and how we expect them to teach. In 2020, the COVID-19 pandemic and the related disruption of schooling across the world has highlighted the many demands that are being put on teachers to support student learning, development and well-being in a context of rapid change. It has brought renewed attention to the breadth of teachers' roles and responsibilities beyond the transmission of knowledge and skills, including the facilitation of students' engagement in learning and the co-ordination of resources such as parental involvement, socio-emotional support and innovative instructional tools and materials. At the same time, the crisis has exposed the challenges involved in preparing, supporting and equipping all teachers to adapt to change, be it of a sanitary, social, economic or technological nature.

Global developments over the past decades have put universal subjects like environmental education and global citizenship high on school systems' agenda. Moreover, the United Nations' Sustainable Development Goals have reaffirmed a strong commitment to the inclusion of children with special educational needs and supporting vulnerable children and those with migration backgrounds (United Nations, 2015[4]). Similarly, in some systems national school curricula undergo frequent changes as governments seek to operationalise their manifestos, respond to socio-economic changes and newly emerging evidence. The accelerating pace of social change is likely to translate into growing pressures for a constant evolution of school curricula (OECD, 2018[5]). Although we only start to understand how curricula changes can be implemented so as to lead to meaningful pedagogical change in the classroom, we know that teachers and their professional learning systems must be at the heart of this process (OECD, 2019[6]).

Teachers and schools also play a central role in preparing children for an increasingly technology-rich world and evidence suggests that teachers' own digital competence is instrumental for their students' capacity to make the most of these trends. There is a significant positive relationship between teachers' problem-solving skills in technology-rich environments and students' performance in computer problem solving and computer mathematics. At the same time, teachers are currently less likely than other

tertiary-educated graduates to possess these skills. Amidst an increasing expectation to work with data in the classroom and integrate technology in their pedagogical practices, many teachers report needing training in ICT skills for teaching. There is therefore a growing consensus that governments need to shift their approach from squarely focusing on investments in digital resources to ensuring teachers have the necessary training and tailored support to use these tools effectively (OECD, 2019, p. 180[7]).

2.2. New evidence on effective (and less effective) CPL practices

Over the course of recent decades, a wealth of new evidence on the effects of CPL has caused a paradigmatic shift in the way we conceive of effective forms of professional learning (more on this in Section 4). Traditionally, professional development (PD) has often taken the form of single or short series of externally provided learning courses. Many have expressed concerns regarding the effectiveness of these forms of professional development, and evaluations frequently find that they fail to produce meaningful improvements in teaching quality or student outcomes (Glazerman et al., 2010[8]; Jacob and Lefgren, 2004[9]; Harris and Sass, 2011[10]; Garet et al., 2016[11]; Garet et al., 2008[12]). At the same time, there is little doubt that unlocking the full potential of professional learning can help teachers improve their practice throughout their career (Kraft and Papay, 2014[13]; OECD, 2018[14]).

To overcome the shortcomings of traditional professional development formats, various new approaches to supporting teachers' learning have emerged and there is evidence to suggest that some of them are more effective in improving learning outcomes than others. This includes school-based, teacher-led improvement projects that focus on classroom practices and emerge directly from teachers' and their students' needs, but also different forms of collaboration (Opfer, 2016[15]) and individualised instructional coaching, based on designated teacher coaches (Blazar and Kraft, 2015[16]; Kraft and Blazar, 2017[17]) or matching effective teachers with less effective ones (Papay et al., 2016[18]).

In a systematic review of the empirical literature, Darling-Hammond et al. (2017[19]) find that successful professional development with demonstrated benefits for student learning generally displays one or more of the following seven characteristics:

1. It is content-focused.

2. It incorporates active learning utilising adult learning theory.

3. It supports collaboration, typically in job-embedded contexts.

4. It uses models and modelling of effective practice.

5. It provides coaching and expert support.

6. It offers opportunities for feedback and reflection.

7. It is of sustained duration.

A significant body of research continues to refine our understanding of the features that make CPL activties effective and of the mechanisms that might explain why and when specific features of professional learning matter the most. Yet, despite significant progress, there is no consensus on a set of necessary or sufficient characteristics that could ensure the success of teachers' learning (Sims and Fletcher-Wood, 2020[20]). In fact, recent evidence has cast doubt on the notion that specific design features could be reliable predictors of the success of professional learning programmes across contexts (Kennedy, 2016[21]). Notably, recent rigorous evaluations have shown several professional learning interventions in the United States to have had no positive impact on student achievement

and – in some cases – on teacher knowledge, even though they were sustained in duration, active, collaborative, content-focused and drew on outside expertise (Jacob, Hill and Corey, 2017[22]; Garet et al., 2016[11]; Garet et al., 2011[23]).

Recent meta-reviews by Kennedy (2019[24]; 2016[21]) looking only at rigorous studies using randomised control groups have echoed concerns about the effectiveness of formal PD programmes. Many interventions with popular design features were found to have no effect on student achievement, or smaller effects than cost-free interventions that encouraged teachers to engage in informal peer support (Papay et al., 2016[18]). Those professional learning interventions that were effective tended to be adapted to local conditions (rather than "pre-packaged") and they tended to focus on teachers' ability to think strategically and autonomously about how students learn and behave (rather than focusing exclusively on teaching practices or content knowledge) (Kennedy, 2019[24]).

Other reviews have focused on teachers' collective participation and collaboration as a design feature, pointing to the varied effectiveness of learning communities, depending on the content they discuss and the nature of their intellectual work (Kennedy, 2016[21]), as well as the methodological challenge of identifying the effects of teacher collaboration (Sims and Fletcher-Wood, 2020[20]). A review of professional learning programmes found that effective interventions tended to involve teachers in communities that allowed them to plan and examine the impact of their practice collaboratively. However, collaboration was not sufficient and its impact usually hinged on collaboration to be highly structured and focused around aspirations for pupils (Cordingley et al., 2015[25]; Timperley et al., 2007[26]).

Several reviews have also called for a closer examination of the timing and duration (or intensity) of learning activities. A meta-analysis of professional learning interventions in English-speaking countries found most impactful learning activities to be characterised by an extended duration and frequent contacts with providers, which allowed for a an iterative approach to learning. Nevertheless the authors concede that shorter time spans were sufficient and sometimes desirable for activities with narrowly defined learning goals or high intensity (Timperley et al., 2007[26]). Furthermore, an extended duration alone was no guarantor of effectiveness. What differentiated successful programmes was less their duration than the way time was used and how adapted the programmes were to the rhythm of school life (Cordingley et al., 2015[25]).

Involving external expertise in teachers' professional learning activities is usually considered an effective means to introduce teachers to fresh perspectives and challenge established orthodoxies both at the individual and at the school level. Most reviews find external input to be a common feature of successful professional learning initiatives. The type of input they provide and their relationship with teachers varies though, sometimes working in tandem with internal specialists to engage in modelling, to provide observation and feedback, or to act as instructional coaches (Cordingley et al., 2015[25]). Of course, the effective use of external specialists also depends on the alignment between their expertise and the learning activites in question.

In general, the most rigorous reviews of available evidence suggest that no single particular form of learning activity was universally effective. Typically, the activity's content and its alignment with the intended learning goals was more important than its format. Including a variety of activities can reinforce messages and allow teachers to test and interrogate their practice from multiple angles (Timperley et al., 2007[26]).

In sum, the research described above may be taken to suggest that the most promising path towards greater effectiveness in teachers' CPL is not the mechanic compliance with a list of design features, but rather developing a better understanding of the way teachers learn, what motivates them to learn, and how, why and when specific design features can support

this process (Kennedy, 2016[21]). It is also clear that – while there may not be a definitive set of professional learning practices that work, or a single scale to measure the effectiveness of different professional learning activities – the research overwhelmingly supports a shift away from passive, standardised, one-off seminar-style courses. Learning opportunities that fail to provide teachers with structured opportunities to understand, practice and reflect on the implications of the new approaches and practices they learned are unlikely to be effective (Cordingley et al., 2015[25]). Nevertheless, evidence from TALIS 2018 suggests that teachers' participation in activities that involve peer or self-observation, coaching and collaboration remains comparatively low (OECD, 2019[3]). Translating the mounting evidence on effectiveness in CPL practices into meaningful change on the ground thus remains a challenge for school systems to address.

2.3. New technologies and modes of CPL delivery

Over the last decade, technological innovations have provided new avenues for teachers' professional learning. A broad range of digital, online and open educational resources (OERs) are now freely available to support teachers' work and massive open online courses (MOOCs) offer new modes of delivering education. In the United States, teachers already account for a large share of MOOC participants (Seaton et al., 2015[27]) and as the European Commission's Joint Research Centre has documented in a recent inventory of innovative teacher CPL practices, some school systems have already started to embrace these innovative forms of online delivery and blended formats to support their teachers' professional growth (Vuorikari, 2018, p. 22[28]).

The use of technology in teachers' professional learning was further accelerated across the world with the COVID-19 pandemic, which has disrupted teachers' face-to-face professional learning in many education systems and created urgent needs for professional learning related to remote teaching and distance learning. In this context, many governments, higher education institutions and other professional development providers have made learning resources available for teachers or provided training online to support teachers in adapting to the new teaching and learning situation. Online professional learning communities have also received renewed attention.

The adaptability of OERs has arguably allowed teachers to tailor educational resources to the educational environment in which they teach and facilitate collaboration around the production and application teaching resources. At the same time, experience shows that teachers' require guidance, training and explicit support to effectively use OERs for their professional development (Orr, Rimini and van Damme, 2015[29]; Seo and Han, 2013[30]). Likewise, relatively little is known about the quality of MOOCs and their effects on skills development, but they appear to hold promise as a tool to facilitate teachers' lifelong learning (OECD, 2019[7]).

If the necessary infrastructural conditions (e.g. fast broadband internet) are in place, open education resources and MOOCs also hold the potential to mitigate geographical and other inequalities arising from the absence of high-quality teacher trainers and resources. At the same time – as for most forms of adult education and training – those who are most likely to participate in MOOCs are the highly educated and highly skilled (OECD, 2019[7]). Systems therefore face several challenges, including to better understand how online learning opportunities can help all teachers in their professional development, to define standards and good practices, to find ways to measure and signal their quality and to effectively integrate them into TPL systems alongside both traditional and collaborative modes of CPL (OECD, 2019[7]).

2.4. Greater diversity in teachers' pathways into the classroom

Although the majority of teachers in most OECD countries enter the profession after having completed a tertiary teacher education programme, some countries, including the United States, have seen a growth of "alternative pathways" to teaching over the past decades. This includes alternative certification processes, which tend to involve short-term trainings lasting anywhere from a few weeks to a few months or employment-based residency training. Some of these programmes are aimed at second-career teachers, while others are intended to attract high-skill recent tertiary graduates with non-teaching degrees (e.g. Teach for All, a network of teacher recruitment and development programmes in 58 countries) (OECD, 2019, p. 281[31]).

In some OECD countries, these alternative pathways represent a notable share of new entrants into teaching. In TALIS 2018, at least 13% of teachers in Colombia, the Flemish Community of Belgium, England (United Kingdom), Estonia and Lithuania, who had completed their formal teacher education in the last five years reported to have done so through a fast-track or specialised programme (OECD, 2019, pp. 207, Table I.4.12[3]). These alternative pathways can be an effective means to address general teacher shortages, to fill vacancies in high-need areas or to attract high-calibre candidates who might not have otherwise considered a career in teaching.

However, there are also concerns that a greater reliance on alternative pathways into teaching carries the risk of diminishing the value of initial teacher education and its ability to instil a common set of standards and competences in beginning teachers (OECD, 2019[6]). Continuing professional learning can be a means to mitigate these risks and to help teachers who enter the profession laterally develop the pedagogical skills that enable them to translate their passion and expertise into student success. The Teach for All (TfA) programmes, for example, aim to provide their teachers with extensive coaching and continuing professional development (Clark and Isenberg, 2020[32]). For a more comprehensive discussion of alternative pathways into teaching, see the recent reports *Working and Learning Together: Rethinking Human Resource Policies for Schools* (OECD, 2019[31]) and *A Flying Start: Improving Initial Teacher Preparation Systems* (OECD, 2019[6]).

As more teachers are entering the profession through alternative pathways, countries not only need to devise different mechanisms to safeguard the quality of beginning teachers, but also reflect on the role that CPL should play in responding to the needs of a more heterogeneous teacher workforce. Mid-career professionals making a lateral move into teaching will have very different needs than graduates of fast-track university courses. Teachers' CPL systems therefore face the challenge of providing each teacher with learning opportunities that are accessible and relevant without assuming their grounding in a common initial teacher education.

2.5. Increasing emphasis on resource efficiency in education systems

While effective public spending is always important, ensuring value for money is particularly high on governments' agendas when they are facing increased fiscal pressures. In the aftermath of the global financial crisis of 2008, a range of countries have implemented austerity measures impacting their school systems. Between 2005 and 2015, the share of government expenditure on primary to tertiary education decreased by 0.5 percentage points on average across OECD countries and in more than 70% of the countries with available data. Although 27 of 35 OECD countries with available data have increased their overall government expenditure between 2011 and 2015, in 18 of them the

growth in education spending has not kept up. In six OECD countries, absolute spending on education even dropped over the course of this period while overall government expenditure rose (OECD, 2018, pp. 290, Table C4.3[33]).

While at the time of writing this paper, there is uncertainty about the extent to which the COVID-19 pandemic will affect government education budgets in the medium and long term, it is clear that the economic shock associated with the pandemic is likely to be among the worst experienced by OECD countries in a century. While governments may opt for different strategies drawing on lessons learned, it can be expected that the impact of the pandemic on education budgets will show some similarities to past crises. Even if education budgets are initially protected, substantial resources will continue be needed for the health sector, social services and the economic recovery, and economic and finance ministries will be faced with complex choices in seeking to balance short-term and long-term economic and social goals.

When systems' and schools' budgets come under pressure, there is a risk for professional development to be one of the areas of investment that will suffer first, given that it is a "soft target" or that it can be seen as teachers' own responsibility. The negative impact of cuts or insufficient support may take a relatively long time to materialise. At the same time, stakeholders have raised justified concerns whether resources for professional development are spent where they matter the most and the evidence clearly indicates that some CPL investments are more effective than others in supporting teachers' professional growth. Making a strong case for the importance of investing in professional learning – especially at a time when budgets are under pressure – therefore requires a particular focus on its effectiveness to achieve the best possible outcomes for teachers and teaching.

3. Analytical framework

3.1. Theoretical background and definitions: From continuing professional development (CPD) to continuing professional learning (CPL)

The discussion of teachers' continuing professional learning has an intellectual lineage that can be traced back at least as far as the early 20th century. John Dewey, for example, influentially argued for the importance of preparing teachers to be "thoughtful and alert students of education […]. Unless a teacher is such a student, he may continue to improve in the mechanics of school management, but he cannot grow as a teacher, an inspirer and director of soul-life" (Dewey, 1904[34]).

The renewed interest in teachers' CPL during the second half of the 20th century comes in the context of a wider recognition that modern societies need to provide educational opportunities throughout adult life. This case was notably made by UNESCO's 1972 Faure Report (Faure et al., 1972[35]), which popularised the concept of lifelong education (*education permanente*), as well as its successor, the 1996 Delors Report (Delors et al., 1996[36]), which put forward a vision for lifelong learning (*education tout au long de la vie*).

The study of such "lifelong", or at least "career-long", professional learning requires a different approach than that of initial teacher preparation systems. The structure of ITP systems lends itself to a framework based on a model of linear progression and an assumption of relative homogeneity. The overarching goals and contents of ITP programmes are typically agreed on at the system level and formal course settings play an important role in the delivery of programmes. Initial teacher preparation has a clearly defined starting point (teachers' entry into initial teacher education (ITE)), an end

(teachers' entry into the classroom or completion of induction programmes) and parallel trajectories for the majority of teachers (although alternative pathways are increasingly common in some OECD countries).

By contrast, continuing professional learning is a process with varying degrees of (dis)continuity and lacks a pre-defined end point. In addition, continuing professional learning may be undertaken in the pursuit of various goals set at the teacher, school or system level and an important share of it may take the form of informal, unstructured or collaborative activities. CPL can take very different shapes from one teacher to another and its trajectory will depend on the particular contexts in which teachers work. Hence, a useful framework for the analysis of CPL systems needs to be sufficiently flexible to accommodate significant variation in the goals, methods and actors involved.

Drawing on definitions advanced by the OECD's TALIS survey (OECD, 2016, p. 86[37]) and the *Education at a Glance* data collection (OECD, 2015, p. 502[38]), the TPL study proposes, at this stage, to adopt a broad definition of teachers' continuing professional learning as "formal and informal activities that aim to update, develop and broaden the skills, knowledge, expertise and other relevant characteristics of in-service teachers".

On the basis of this definition, the study seeks to reflect recent advancements in the theory and practice of teachers' CPL. It aims to do so by (1) using a broad definition of CPL goals to account for teachers' (and students') diverse and changing needs; (2) including informal and non-formal settings and formats such as personal study and collaborative learning; and (3) going beyond the teacher's role as a recipient of CPL to focus on teachers' agency in the learning process, and shifting the emphasis from the individual teacher towards teachers' collective capacity.

The TPL study seeks to avoid a dichotomy between formal professional development (PD) and everyday professional learning (PL), which are sometimes treated separately in the literature (Webster-Wright, 2009[39]). Rather, the term CPL is used broadly to include various forms of learning for professional growth. Traditional professional development courses or seminars are seen as one component within a much larger ecosystem of continuing professional learning opportunities. Professional development initiatives may or may not lead to professional learning but they are not identical with it (see Box 3.1).

Box 3.1. Notes on terminology: From "staff development" to "professional learning"

The term "professional learning" (PL) has become increasingly popular and used in educational policy, practice and research since the 2000s. Some have argued that PL has become a "buzzword" of the 21st century, to the extent that it is now sometimes used interchangeably with the term "professional development" (Mockler, 2013[40]). However, it appears relevant for the TPL study to disentangle important nuances between the two terms as they are articulated in the educational research literature.

In the first half of the 20th century, teachers' in-service education was typically conceptualised as "staff development". This term tended to be associated to development in its passive sense, where units of knowledge were delivered to members of staff in settings such as workshops, seminars and conferences. The responsibility for ensuring such staff development was typically seen to lie with institutions or system leaders (Lieberman, 1995[41]; O'Brien and Jones, 2014[42]).

Over time, the term "professional development" (PD) widely replaced that of staff development, often in a context of career progression and desired improvement of teachers' skills in line with professional standards and/or system-wide reforms. In policy

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contexts of accountability and managerial interpretations of professionalism, professional development has emerged as an important means to ensure public confidence in teachers' competence in relation to goals and standards, typically set at higher levels of the system (Sachs, 2016[43]; Hoyle, 2001[44]; Ozga, 1995[45]; Sockett, 1996[46]; Troman, 1996[47]) and McClelland (1990, cited in (Evetts, 2003[48])). The focus of research on professional development has typically remained on the activities that deliver knowledge and expertise to teachers, rather than on the particular contexts in which teachers apply such knowledge (Webster-Wright, 2009[39]; Timperley, 2011[49]).

The term "professional learning" was initially coined to distinguish more active and contextualised forms of learning, inquiry and reflection from the passive connotation of professional development (Lieberman, 1995[41]). The term is typically used in more contextually defined interpretations of teachers' professionalism that highlight the importance of teachers' own agency in contributing to defining and achieving objectives for their students, their school, the community, the system and the profession itself (Sachs, 2016[43]; Evans, 2008[50]; Newman and Clarke, 1997[51]; Day and Sachs, 2005[52]) and McClelland (1990, cited in (Evetts, 2003[48])). From a review of relevant research, the following characteristics appear particularly important in distinguishing the concept of professional learning from that of professional development (Doyle, 1990[53]; Timperley and Alton-Lee, 2008[54]; Bleicher, 2013[55]; Timperley, 2011[56]; Cordingley et al., 2020[57]; Timperley, 2011[49]):

- An **active role for teachers** (individually and collectively) who are considered to be reflective professionals;

- A **context-based process** that recognises the importance for teachers to be responsive to the particular learning needs of their students and for schools to serve the particular needs of their communities;

- A **strong evaluative dimension** with teachers systematically examining the effectiveness of their own practice;

- A **long-term process** that is integrated into regular school life and includes systematically planned opportunities to promote professional growth;

- A process that **leads to change** in teachers' knowledge bases, beliefs and practice or capacity for practice.

3.1.1. Goals

The TPL study seeks to recognise the importance (1) for systems to set and pursue overall goals for teachers' professional competence, (2) for school leadership teams to adapt wider system goals to the needs of their school community and (3) for teachers to have agency in improving their own teaching practice and meeting their students' needs.

Countries set different goals and priorities for their CPL systems. While there is an overall consensus that CPL should seek to improve the quality of teaching, the definition and measurement of quality teaching varies across countries (see also Section 3.5). Besides quality teaching, countries often set broader objectives for CPL systems, such as enhancing teacher professionalism (see Box 3.1) and teacher well-being. Countries also differ with respect to the actors involved in setting objectives and in the extent to which stakeholders have a common vision around the goals for teachers' continuing learning. Understanding the broader goals and the context in which CPL systems are operating is essential for analysing their strengths and weaknesses.

At the same time, while the goals for school education vary across the OECD, the objective to improve student outcomes – whether broadly or narrowly defined – is at the heart of all OECD systems. Timperley (2008[58]) highlights the importance of ensuring that all actors involved understand valued outcomes for students to be the rationale for and focus of teachers' professional learning. From this perspective, professional learning can be considered successful if it has a positive impact on student outcomes and helps teachers link particular teaching strategies to their students' learning experience. The goal of professional learning is then not just to help teachers master particular strategies, but to help them develop, implement or adapt strategies based on how their diverse students learn and respond to them.

The focus on student outcomes as the key motivation for teachers' professional learning requires particular attention to student assessment at all levels of the system (Timperley, 2008[58]). While system-level assessments can help identify overall learning gaps and inequities in the system, more thorough assessments at the school and classroom level are essential to identify the learning needs of students in each school (OECD, 2013[59]). Based on student assessment and school evaluation results, school leaders and teachers can define goals at the school, classroom and student levels that should inform professional learning in their school.

It is important to note that in most education systems, valued student outcomes include more than just academic achievement or test scores. Summarising the evidence on continuing professional development and learning, Cordingley et al. (2020[57]) highlight the importance for school leaders to build CPL in their schools around a shared sense of accountability among all staff, not just for student achievement, but also for their well-being. As highlighted in OECD (2019[31]), collaboration of school staff across classrooms, grade levels and extracurricular activities can help ensure that teachers are more knowledgeable about the academic, social and emotional needs of their students. Based on such knowledge of their students' holistic needs, teachers, school leaders and others can then engage in relevant professional learning to better address them.

3.1.2. Key actors

A wide range of actors can lead CPL activities and teachers themselves initiate or steer much of their private professional learning. In doing so, they may draw on resources provided by third parties, such as the research community, textbook publishers, peers and other organisations. Steering their own professional learning allows teachers to identify, communicate and address their needs while assuming greater collective responsibility for their school's improvement. As described in more detail in OECD (2019[31]), professional autonomy is a key dimension of job characteristics that affect individuals' motivation, satisfaction and sense of self-efficacy; in the school context it has also been shown to affect turnover rates among some groups of teachers (Ingersoll and May, 2012[60]). Fostering trusting relationships that allow professionals to individually or collectively take control over their learning can thus generate positive outcomes at the individual, organisational and system level.

Some types of CPL – particularly those based on collaboration and exchange – rely on peers or groups of teachers to initiate the learning experience. This can take the form of private exchanges in online discussion forums, school-based mentoring, peer observation or exchange in informal teacher networks but also in more formalised school-based professional learning activities (Stoll et al., 2006[61]). In particular, school leaders and their teams play a critical role in facilitating school-based CPL activities. At the interface between their schools and the wider system, school leaders typically have a dual role of (1) aligning professional learning in the school to requirements set at the system level and

(2) respond to their specific school's needs by connecting staff to evidence and opportunities for professional learning beyond the school.

In contexts of school autonomy, leadership teams can choose approaches that fit best the needs of their schools and surrounding communities, provided that they have the necessary resources and supports. Schools can also provide other schools with peer learning opportunities, for example by inviting staff from other providers to observe their practices or – in some systems – offer CPL services to other schools. While the benefits of collaborative professional cultures in and across schools are widely recognised, there is still limited knowledge regarding the policies that best support them. As discussed in the OECD School Resources Review's synthesis report on human resource policies (2019[31]), imposing professional collaboration "from above" may be counter-productive and overload teachers' schedules with requirements that take time away from potentially more impactful teacher-led initiatives and innovations. On the other hand, relying only on professional agency without providing supports may reinforce inequities between schools and lead to some teachers and schools being isolated, or reinventing the wheel when developing improvement strategies.

Expecting practitioners to take responsibility for their own learning in response to students' needs requires a culture where they are supported in gaining context-relevant expertise and experimenting with different teaching practices to support student learning. Policy makers at different levels of the system can provide such support by forecasting and identifying learning needs at the system level, monitoring the effectiveness of different types of CPL, supporting school leaders and teachers in navigating the offer of learning resources, setting quality standards for professional development provision and materials, accrediting providers, sharing evidence-based resources, allowing dedicated time for professional learning and scaling and sustaining innovative models (see Section 4.3). In many countries, they engage in such roles in partnership with various actors at the system level, including teacher education institutions, research organisations, teacher unions, professional associations, private actors and civil society organisations.

3.1.3. Settings, formats and degrees of formality

Teachers pursue professional learning activities in a range of settings, including in their private time in settings of their choice (e.g. at home or in a library), on site in their own school, or off site (e.g. in training institutes, higher education institutions or teacher professional organisations). Of course, the extent to which teachers engage in private study at home depends on how they are expected to spend their non-teaching time. In systems where it is required or common for teachers to spend their non-teaching time in their school and where the necessary facilities are available, a significant share of self-study might take place on school premises. Likewise, some types of CPL combine activities taking place in different settings, involving for example a combination of peer observation with subsequent self-study, or blending on-site training with online courses.

The literature on professional learning frequently characterises activities based on their degree of formality (Werquin, 2010[62]). On this spectrum, the most formalised learning involves actors' intentional participation in organised, structured activities with the explicit goal to promote the acquisition of knowledge, skills and competences. In the context of teachers' professional learning, these activities tend to be initiated by schools or education authorities and – whether mandated or not – they tend to be officially recognised and to yield evidence of teachers' participation. Examples of professional learning activities with a typically high degree of formality include the attendance of courses or seminars, the pursuit of formal qualification programmes, formal coaching, structured induction

programmes, and observations embedded in teachers' formative appraisal cycle (see Table 3.1).

By contrast, the most informal forms of teachers' professional learning emerge from the daily activities related to their work. They are not organised or structured with pre-determined objectives and are not necessarily perceived or intentionally initiated as learning activities by those who engage in them. Examples for learning practices with a typically low degree of formalisation include ad-hoc peer exchange on professional matters, teachers' exchange on online platforms or the participation in teacher networks and informal mentoring arrangements. These autonomous learning activities, although they are often hidden from the view of policy makers, are integral to teachers' professional growth and in some cases, what begins as informal learning evolves into or sparks more formal learning experiences later on.

Between these two poles are a wide range of professional learning practices with intermediate degrees of formality that are sometimes characterised as "non-formal activities" (Werquin, 2010[62]). These are usually initiated by teachers or groups of teachers and are often intentionally conceived as learning opportunities. Their goals and structures tend to be developed by those who engage in them and may evolve over time. Although participation in these non-formal learning activities may be externally supported, it is usually not regulated or covered by teachers' official learning requirements or entitlements. Examples for learning activities with such intermediate degrees of formality may include teachers' self-directed study and participation in online courses, meetings in professional learning communities or grassroots teacher-led learning events.

It is worth noting that any given type of learning activity can exhibit varying degrees of formality depending on the policy environment and context in which it is embedded. On-the-job mentoring, for example, can take the informal form of ad-hoc advice based on personal relationships between colleagues and without a formal framework or guidelines. In other contexts, mentorship may take more structured forms and could be carried out by individuals with formal mentoring responsibilities and resources, and whose practice is monitored by schools in compliance with a central regulatory framework. Likewise, learning activities can undergo a process of formalisation over time, for example when structures become established through protocols and other means of codification or when teachers' engagement becomes officially recognised and validated.

To account for the rich and changing landscape of teachers' continuing professional learning and its heterogeneity across countries, the TPL study proposes to take a comprehensive approach. Many of the learning activities that matter for teachers' professional growth stay under the radar of policy makers or emerge from practices that are not officially recognised or formally structured. The TPL study therefore seeks to consider the full spectrum of CPL, including both formal and more informal learning activities. Table 3.1 provides a tentative, non-exhaustive list of learning activities that could be considered by the TPL study, organised based on the setting in which they usually occur and their typical degree of formality. As described below, in the context of this study and for the purpose of this illustration, formality is considered as a continuum along which learning activities can be situated, rather than a set of clear-cut categories.

Table 3.1. Examples of professional learning activities

Setting	more formal ←	Typical degree of formality	→ less formal
Private	Online courses and seminars		Exchange on online platforms
	Self-study with monitored outcomes		Self-study without monitored outcomes
School-based	Workshops and on-the-job training		Professional learning communities*
	Structured induction programmes		Peer exchange and collaboration
	Observation as part of formative appraisal		Peer and self-observation
	Structured coaching and mentoring		Ad-hoc coaching and mentoring
Off-site	External courses and seminars		Inter-school exchanges
	Qualification programmes		Teacher networks
	Teacher conferences		

Note: *Professional learning communities (PLC) refer to school-based groups involving staff in collaborative professional development activities to improve teaching practices. They may be based on subject areas or grade levels and tend to involve sharing and critically interrogating practices in an ongoing, reflective, collaborative, learning-oriented way (Stoll et al., 2006[61]).

3.2. Scope of the framework

While the focus of traditional continuing professional development has often been on short-term, externally provided formal learning courses, the TPL study seeks to include, in a comprehensive way, informal, school-based and collaborative practices, as well as teachers' private learning activities that may require system-level support and empowerment. Following the definition proposed above, the study's proposed analytical framework focuses on practising teachers and does not cover the professional learning of non-teaching, administrative and leadership staff who are not engaged in classroom instruction. However, school leaders and middle-leadership staff who exercise their roles on a part-time basis or engage in a significant amount of classroom instruction for other reasons (e.g. in small schools) may be included within the scope of this framework insofar as their teaching-specific CPL is concerned.

The study covers the professional development of teachers in school education from the primary to upper secondary level (ISCED 1-3), although countries engaging in a country diagnosis may choose to focus on one or more of these levels, based on their interests and needs. Likewise, while the proposed analytical framework is designed to apply generally to CPL across all school education, individual country diagnoses could be tailored to place greater emphasis on the challenges and practices of a specific sector. This could include, for example, professional learning in the vocational sector, in Special Educational Needs (SEN) education, or the differences between public and publicly funded private schools.

Following the definitions above, the proposed analytical framework covers any CPL aimed at developing the skills, knowledge, expertise and other relevant characteristics of teachers. It also covers activities aimed at developing leadership skills in practising teachers, which may include both pre-service training for aspiring school leaders, but also activities aimed at strengthening the leadership capacity of classroom teachers as part of more broadly defined forms of distributed leadership.

3.3. Analytical dimensions and key policy issues

Based on a review of prior OECD work and relevant research, the TPL study proposes to organise its analysis of teachers' professional learning around five dimensions: motivation, access, provision, content, and quality (see Figure 3.1 for an illustration). These broad areas of analysis are suggested to underpin the study's analytical framework and to guide the collection of qualitative information through Country Background Reports (CBRs).

The following sections describe each of the five analytical dimensions and outline a non-exhaustive set of policy issues to illustrate the types of questions that might be addressed under each of the dimensions. Around each of these issues, the study proposes to facilitate peer exchange and identify common challenges, strengths and innovations in order to support participating jurisdictions in developing policy responses. In addition to the policy issues pertaining to each of these five dimensions, several questions at the heart of the TPL study require a comprehensive, multi-dimensional approach and can guide the policy diagnosis within each of the five dimensions. These cross-cutting issues include:

- What **vision and strategic objectives are guiding CPL policies and practices**, who is involved in setting them, and how are various stakeholders' goals aligned?

- What is the **understanding of teacher professionalism** underlying CPL policies and practices, and is this understanding shared across various stakeholders?

- How can school systems adapt to new forms of CPL and support a **re-orientation towards the most effective practices** at all levels?

- Which policies and resourcing strategies can **ensure that teachers in all schools benefit from relevant CPL** that addresses their needs and helps them to improve their practice?

The TPL study's objective is to help countries improve their professional learning systems in order to support their educational goals related to quality teaching and, ultimately, improved student outcomes. In so doing, the study seeks to be mindful of countries' own definitions of these terms and objectives, of their different educational priorities and of the other goals they may hope their professional learning systems to accomplish (e.g. teacher professionalism and teacher well-being).

3.3.1. Motivation: What shapes teachers' motivation to engage in CPL? (Dimension 1)

Providing teachers with the right incentives to engage in CPL, while recognising the importance of their self-initiated and autonomous engagement in professional learning activities, is a central challenge in building holistic CPL systems. Coming to a nuanced understanding of teachers' motivation and taking it seriously has come to be seen as an important – if often overlooked – step to increase the success of professional learning (Kennedy, 2016[21]). Mindful of the diversity of individual teachers' approaches to and motivations for engaging in professional growth, the TPL study seeks to investigate both the extrinsic and intrinsic factors that motivate teachers to learn.

Extrinsically motivated behaviour is typically understood to refer to activities that actors engage in for instrumental reasons, i.e. due to their association with a desired consequence (including both tangible rewards and implicit approval). Intrinsically motivated behaviour, by contrast, is autonomous and driven solely or primarily by the actor's interest in or enjoyment of a given activity. Although activities that are not interesting or enjoyable in and of themselves generally require some extrinsic motivation, in practice, many forms of behaviour are driven by a combination of both intrinsic and extrinsic motivation. This is the case, for example, where externally defined goals associated with an activity are in line with the actors' own values and beliefs (Gagné and Deci, 2005[63]).

On the one hand, this dimension therefore covers the factors that shape teachers' extrinsic motivation to engage in CPL through incentives or requirements. This includes, for example, formal appraisal or certification processes, as well as direct and indirect links between professional development and teachers' career progression or compensation.

On the other hand, the dimension considers the factors that stimulate teachers' intrinsic motivation to engage not only in formalised CPL but also in private and self-initiated autonomous learning practices. Intrinsic motivation is an important factor driving teachers to prioritise engagement in CPL over many other professional and personal demands on their time. Intrinsic motivation can be the product of teachers' professional environment, their personal dispositions, affinities, perceived needs and the satisfaction derived from professional learning. It is also shaped, however, by teachers' interaction with extrinsic incentives and their alignment with teachers' self-selected goals, values and beliefs.

Reviews of professional learning initiatives suggest that they can be successful whether they are voluntary or obligatory, and that the more important factor is whether the activities themselves manage to instil and maintain a shared sense of purpose among participating teachers (Cordingley et al., 2015, p. 5[25]). Successful CPL systems are likely to strike a balance and effectively combine elements of external control with teacher ownership and agency emerging from within the profession. The TPL study therefore seeks to consider teachers' motivation holistically and capture policy approaches and systems that shape teachers' extrinsic motivation to engage in CPD alongside those that strengthen teachers' intrinsic motivation. It also considers how systems can build trust and overcome cultural barriers that may impede teachers' willingness to open their classrooms up to peer learning and collaboration. In addition, the dimension covers the incentives for other actors, including schools, professional organisations, higher education (HE) institutions and private actors to engage in or promote the provision of CPL. Relevant questions to be addressed in this dimension include:

- How can systems foster trust and other norms that support teachers' willingness to engage in professional learning, both individually and collectively?

- How can systems create a culture in which teachers (and their workplace) prioritise CPL in relation to other demands on their time?

- How can systems create a culture in which teachers are willing and open to engage in different forms of professional learning, including on externally set priorities and content?

- How can teachers be provided with meaningful incentives to participate in CPL without crowding out their intrinsic motivation to develop their practice?

- How can actors across the system be incentivised to contribute to the promotion and provision of effective CPL?

Examples of policy issues and questions for analysis (Dimension 1: Motivation)

Fostering teacher's intrinsic motivation to engage in CPL

Lower secondary teachers in the majority of OECD countries are either mandated system-wide or required by their schools to engage in professional development during their statutory working time (OECD, 2018, pp. 395, Table D4.[33]). Although requirements for teachers' engagement in CPL are relatively minimal in most OECD countries, some countries require teachers to engage in a significant amount of CPL or provide them with strong extrinsic incentives to do so (e.g. by making teachers' salary progression, promotion or re-certification conditional on the completion of a given number of training hours) (OECD, 2014, pp. 528, Table D7.1c[64]). Experience has shown that such incentives are not always effective and may risk turning CPL into a bureaucratic checklist to complete, rather than an opportunity for true skill and capacity development. In the worst cases, formal requirements may crowd out teachers' intrinsic motivation to learn (Bénabou and Tirole,

2003[65]; Christian, Jacobsen and Andersen, 2013[66]; OECD, 2019[31]). In addition, it is widely acknowledged that many of teachers' professional learning activities are informal, self-initiated or happen in private settings. However, not all systems have adequate means to formally recognise the value of these activities for teachers' professional growth and to support them in their autonomous learning activities.

Linking CPL with teachers' appraisal and career advancement

Teachers' regular formative appraisal provides an opportunity for school leaders and teachers to engage in an ongoing exchange to identify the learning opportunities that might help teachers at all levels of experience to maximise their potential for professional growth. Nevertheless, in many systems, the formative function of appraisal, as a tool to build capacity and inform teachers' professional learning, is underdeveloped. In some systems, formative appraisal occurs rarely, not at all, or only on a voluntary basis (OECD, 2019[31]). In other systems, evaluations are conducted more frequently, but fail to inform teachers' professional learning effectively (OECD, 2013[59]). Even where these links exist, there is a risk that teachers perceive their evaluation as a high-stakes accountability tool, rather than an opportunity for developmental growth (Santiago et al., 2016[67]; OECD, 2019[31]).

Links between teachers' appraisal and their CPL have traditionally focused on the identification and remediation of teachers' perceived weaknesses. In 2015, 10 of 19 OECD countries with available data reported that their systems follow up on teachers' negative appraisal results with compulsory training. Although this deficit-oriented approach is still dominant in many systems, the appraisal process can also assume more growth-oriented forms and give teachers greater agency in shaping their professional learning trajectories. Five of 19 OECD systems reported that their systems reward teachers' positive appraisal results with additional opportunities for in-service professional development (OECD, 2015, pp. 496, Chart D7.2[38]). Rather than informing the individual teacher's CPL activities, appraisal results can also be aggregated to generate topics for collective professional development plans at the school level. This approach recognises the broader school context in which educators work and acknowledges that teachers improve most when they work alongside peers seeking to improve on similar dimensions (Johnson, Kraft and Papay, 2012[68]; OECD, 2019[31]).

Schools and school systems may also seek to link teachers' engagement in professional development activities to their professional advancement. In 2015, 16 of 28 countries with available data reported that participation in professional development activities had a high or moderate influence on the career advancement of lower secondary teachers (OECD, 2015, pp. 503, Table D7.6[38]). Linking CPL to teachers' career advancement in the form of input-based requirements (e.g. the completion of a given number of hours of training) risks creating the perception that CPL activities are mere requirements, with little intrinsic value. However, links between CPL and career advancement may be more indirect and output-based, e.g. where promotions are granted based on a rigorous appraisal of the skills that teachers may have built through CPL.

Fostering trust and a school culture that supports teachers' collaborative learning

Despite the long-standing emphasis placed on teachers' continued improvement, a substantial body of historical education research has documented the limited opportunities that teachers have had for ongoing learning and collaboration. In the 1980s and early 1990s, the research and policy community became increasingly aware of the isolated nature of teachers' work and the limited opportunities for peer feedback and collaboration. In response, significant interest developed in the conditions that can promote professional

learning by facilitating cross-teacher and cross-school collaboration (Little, 1993[69]; Garet et al., 2001[70])

Teachers' engagement in peer observation, feedback and collaborative learning communities holds significant promise for improving teaching practices (Stoll et al., 2006[61]). Learning communities can provide safe environments for teachers to challenge tacit assumptions on what works and why (Timperley et al., 2007[26]). Collaboration also helps to build up trust and social capital in schools that enables teachers to reflect on their habits, to develop new understandings and practices, and to solve collective action problems (Burns and Cerna, 2016[71]). For teachers to engage in these effective forms of collaborative development, they require not only opportunities and resources, but also a professional culture that supports these practices. In some systems, teachers are not used to engaging in peer learning and may be reluctant to open up their classroom to peers, mentors or school leaders. The experience of countries like Denmark has also shown that external support for collaborative practices is most effective in schools whose school leaders are already promoting a horizontal culture and explicitly make time available in teachers' schedules for collaboration (Nusche et al., 2016[72]).

Creating a school culture that tolerates and encourages constructive peer-to-peer feedback between colleagues and suggestions to attempt different instructional strategies is not easy. Scholars have long pointed to the risk that administratively imposed forms of collaboration can create "contrived collegiality," rather than a genuinely collaborative culture (Hargreaves and Dawe, 1990[73]). Leadership and facilitation can certainly play a role in creating the conditions for teachers to develop collaborative relationships with their peers, but interventions that are seen as intrusive and controlling can be counter-productive. Hence, it seems that a careful balance needs to be struck between promoting teachers' ownership and responsibility for their professional learning and ensuring there is sufficient time and structure to allow for effective collaborative practices.

Preparing teachers to become educational leaders

Professional development activities that permit teachers to expand their professional responsibilities can also play an important role in motivating teachers to engage in CPL. Cultivating leadership capacity is a particularly important aspect of CPL in this regard. Given the significant effect that well-prepared school leaders can have on their students' learning outcomes (Fryer, 2017[74]), researchers and policy makers increasingly recognise the importance of providing principals with appropriate training before they assume their role. Effective CPL systems therefore ensure that teachers who aspire to, or are on track to, becoming school leaders have access to learning opportunities that prepare them for leadership before they actually assume leadership roles. While TALIS 2018 finds that school leaders benefit from, and intensively participate in, continuing professional learning activities once they are on the job, they often lack pre-service training on leadership-specific skills prior to taking up their duties (OECD, 2019[3]). Some systems, such as Austria and the Slovak Republic, have sought to address this problem by offering CPL opportunities to aspiring leaders and requiring prospective school principals to engage in part of their training prior to appointment (Nusche et al., 2016[75]; Santiago et al., 2016[76]).

At the same time, leadership training need not have the sole aim of preparing teachers to assume formal school leader roles. Building on a broader conception of leadership (Bierly, Doyle and Smith, 2016[77]), many countries have embraced the value of fostering leadership skills among classroom teachers, to empower them to become leaders of learning and teaching and to use their experience to support others. Education Scotland's "Professional Learning and Leadership Directorate", for example, offers dedicated leadership programmes targeted at all teachers (Education Scotland, 2020[78]).

3.3.2. Access: How accessible is CPL for teachers? (Dimension 2)

Many teachers and principals report barriers and constraints that prevent them from engaging in collaborative or self-directed CPL and from accessing learning opportunities provided by external actors. This dimension considers where these barriers and constraints arise, as well as the policies that can enable schools and teachers to overcome them. The analysis will cover, among other things, (1) which entitlements and requirements exist around teachers' engagement in CPL, (2) the barriers that individual teachers face, e.g. due to time or resource constraints, and (3) the policies that can help alleviate these barriers and ensure that all teachers have access to professional learning opportunities adapted to their needs and working conditions (including those of part-time teachers).

The analysis will investigate both the quantity and quality of the learning opportunities available to teachers, schools and other institutions, and whether the right conditions are in place for teachers to shape and access the types of professional learning that are most effective and relevant for their needs. The dimension also considers how the funding of CPL can exacerbate or alleviate inequities in access and what policies can ensure that teachers can engage in high-quality CPL, regardless of their school size, location or backgrounds. Finally, the dimension looks at how teachers are guided and supported in their own engagement in professional learning and in their search to access CPL that matches their personal needs, as well as those identified by schools and the wider education system. Relevant questions to be addressed in this dimension include:

- How can systems design CPL entitlements/requirements to support and steer access to learning opportunities for teachers at different career stages and in different working arrangements?

- How can systems diversify access to (or diversify the providers of) CPL opportunities, so that schools and teachers have the possibility to choose learning opportunities relevant to their development needs and desires?

- What policies can help teachers to overcome time and financial constraints that inhibit their engagement in collaborative learning or access to training?

- What policies can ensure that socially and geographically disadvantaged schools have the capacity, financial and material resources to let their teachers access high-quality CPL?

- What information and guidance can support teachers in navigating the CPL offer to access the most relevant training?

- How can systems use ICT and online platforms to support teachers' access to CPL and ensure their meaningful engagement?

Examples of policy issues and questions for analysis (Dimension 2: Access)

Lifting barriers that inhibit individual teachers' engagement in CPL

Alongside a perceived lack of incentives and prohibitive participation costs, scheduling conflicts and a lack of time are the most widely reported barriers to CPL participation in countries participating in TALIS (OECD, 2019, pp. 177, Figure I.5.14[3]). Creating time in teachers' schedules is an important precondition for promoting their engagement in both formal and informal forms of professional learning. Not all systems ensure that teachers have sufficient or dedicated time to engage in CPL and self-directed learning often happens in teachers' free time. In addition, some schools may experience challenges in securing substitute teachers to permit staff to leave their classrooms for professional learning

activities, even where they may be formally entitled to a given amount of CPL. At the same time, creating time in teachers' schedules will not be sufficient to foster collaborative professional learning practices in and of itself, since it needs to be accompanied by supportive structures, teacher leadership, protocols and attention to school culture (Charner-Laird et al., 2017[79]; Kraft and Papay, 2014[13]).

Barriers to access CPL may be more pronounced for some teachers than for others. For example, entitlements and supports may be more restricted for teachers on non-permanent contract types or for those working as substitutes. Likewise, time constraints and scheduling difficulties may be particularly acute for teachers working on a part-time basis or under flexible working arrangements, thus reducing the amount or quality of their training and learning opportunities. This worrying pattern holds not only in the teaching profession. Across the EU, only 19% of part-time employees working 11-20 hours reported access to opportunities for training in 2005 (compared to 28% of full-time workers) and only 10% of those working less than 10 hours reported access. The same pattern held for employees' perceived opportunity to learn something new at work (Sandor, 2011[80]). This lack of learning opportunities associated with part-time work can create a dynamic of entrapment in the longer term (OECD, 2017, p. 65[81]). Since teachers' engagement in part-time work or flexible working arrangements at some point in their careers is the norm in many countries and at some levels of education, ensuring that CPL opportunities are available to all teachers is an important policy priority.

Overcoming school-level inequities in CPL access

Schools vary with respect to their teachers' learning needs, but also their capacity and resources to support CPL activities that foster teachers' professional growth. There is some evidence to suggest that teachers in high-performing schools benefit from greater capacity and support systems for active and collaborative professional learning than teachers in poorly performing schools (Darleen Opfer and Pedder, 2011[82]). Conversely, not all schools have the facilities for teachers to engage in collaboration during the school day and those with excessive teacher turnover or staff shortages may face additional challenges in providing their teachers with the continuity and time to engage in effective, sustained collaboration and peerlearning. Likewise, schools serving disadvantaged student populations and, in some countries, those in rural areas often have less experienced teachers who may have greater development needs (Echazarra and Radinger, 2019[83]). Geographic inequities in the access or proximity to training providers can reinforce these challenges.

Inequities in schools' access to high-quality CPL can exacerbate existing discrepancies in teaching quality, with damaging consequences for the learning outcomes of students in disadvantaged schools. System-level policies can play an important role in identifying and addressing some of the sources of these inequities. Needs-based funding systems, for example, may be designed to ensure that all schools have the capacity, and financial and material resources, to support their teachers' engagement in high-quality CPL responding to their development needs. External learning consultants or targeted training to strengthen principals' pedagogical leadership can be used to similar effect. Authorities can also support networks of schools to collaborate on professional learning programmes or share resources to increase their collective capacity and provide their teachers with richer opportunities for professional learning and exchange. There is a risk, however, that performance management and accountability systems that target failing schools can lead to a narrowing, rather than an expansion of their professional learning culture if not well-implemented (Darleen Opfer and Pedder, 2011[82]). Finally, new technologies, such as blended or online learning and digital platforms for professional exchange, where

appropriately used, can help teachers with limited access to or opportunities for face-to-face interactions with peers.

Designing effective funding mechanisms for CPL

Although an increasingly wide range of opportunities for teachers' self-directed professional learning is accessible online and available for free, some of the most effective forms of professional learning are resource-intensive and require substantial investments. School systems therefore need to devise funding mechanisms to raise and allocate resources for these activities and ensure that they are used equitably and to the greatest effect. This is particularly relevant since a substantial proportion of teachers describe costs as a barrier to their professional development (OECD, 2019[3]).

It is also important to note that teachers engaging in CPL may encounter both direct costs (e.g. course participation fees or the cost of learning materials) and indirect costs in the form of time spent on CPL outside of paid working hours. Many systems are moving towards the use of online platforms as a means to lower teachers' costs in participating in CPL. However, when teachers use online platforms to engage in CPL outside of their paid working hours, system costs are passed on to individual teachers. Teachers' engagement in CPL outside of their paid working hours is not free, however, and it is important to consider the costs of teachers' engagement in CPL, whether it occurs within or outside of their regular working hours.

In around half of OECD and partner countries with available data, teachers receive paid leave for their absence during compulsory CPL. Likewise, all countries reported that the cost of teachers' compulsory professional development at the lower secondary level was either fully subsidised or shared by the government (14 countries) or partially subsidised (8 countries). Nevertheless, the mechanisms that systems use to fund teachers' development activities vary considerably (OECD, 2014, pp. 522 ff., Charts D7.3a and D7.3b[64]). In some countries, for example, funding for professional development is allocated to schools in staff expenditure block grants with a high level of spending discretion at the local level. Teachers in some such systems without earmarked CPL funding have reported difficulties in accessing resources for professional development (OECD, 2017[84]).

Likewise, most systems expect teachers to cover some of the cost of non-compulsory professional development (OECD, 2014, pp. 522 ff., Charts D7.3a and D7.3b[64]) and public financial support may be restricted to specific types of CPL, or those offered by officially recognised providers. In contrast to attendance of courses, workshops and conferences, for example, teachers are more frequently required to pay some or all of the cost of participating in qualification programmes (OECD, 2016[37]). Authorities at multiple levels of administration may be involved in decisions concerning the allocation of CPL resources (OECD, 2018, pp. 141, Table D6.8[33]) and policy makers need to be mindful of potential inequities that can arise at both the school and the teacher level, as well as unintended consequences that funding conditions may have on teachers' CPL engagement.

Supporting teachers in navigating the CPL offer to access the most relevant training

CPL systems must ensure that each teacher can engage in learning opportunities that correspond to their needs and contribute to their professional growth. This requires systems to individualise the CPL offer, but also support teachers in finding the right CPL for their needs. There are different mechanisms for doing so, e.g. by linking the choice of CPL to their ongoing appraisal process (see above). Ensuring that teachers and school leaders have

sufficient information about the formal professional learning activities on offer is also critical, particularly where they are expected to make autonomous decisions on which compulsory or non-compulsory learning opportunities to pursue. In 2013, nearly all OECD and partner countries reported that school management plays a role in circulating information about professional learning activities and, in around two-thirds of countries, central/state education authorities played a role in the dissemination process (OECD, 2014, pp. 527, Table D7.4c[64]).

Enhancing accessibility while ensuring the quality of CPL

Rapid technological advancements in ICT and availability of high-speed internet connections have led to the use of online platforms for teachers to engage in CPL. CPL using online platforms has a substantial advantage in lifting the constraints of time and place for teachers accessing CPL. It also allows teacher collaboration across different schools, without geographical constraints, which is particularly important for teachers of minor subjects. In this respect, online platform are an attractive option for many systems as they can offer potential savings in terms of travel costs, venues, substitute teachers and other expenses.

Having CPL online may increase teachers' accessibility to CPL materials and opportunities, but better accessibility carries no guarantee of quality. The existing literature on CPL based on online teacher collaboration has been largely limited to practices involving facilitated collaboration; many of them, in fact, have researchers involved in facilitating the collaboration (Coughlin and Kajder, 2009[85]). Some of the practices observed in teachers' online professional learning communities have been criticised for the limited room for teachers' engagement and dialogue in the in the knowledge-building process (Brown and Munger, 2010[86]), and their potential to lead to a "deprofessionalisation" of teaching (Seo and Han, 2013[30]).

3.3.3. Provision: How and by whom is CPL provided? (Dimension 3)

This dimension looks into the ways in which CPL is provided in different systems, including teachers' role in its delivery and their level of agency in designing and shaping CPL activities. It considers teachers both as recipients and as providers of CPL, both individually (e.g. as coaches, mentors and team teachers) and collectively (e.g. via networks, professional associations and unions). The analysis will focus on both the provision of formal professional development and the process of understanding and supporting effective CPL activities that are led by school-level actors and practiced in private and/or informal spaces.

The means by which teachers engage in professional learning – its setting, format, frequency and providers (including the level of their training or quality) – has a significant impact on teacher learning and development. A central question for school systems is how they can systematically re-orient and extend their CPL systems to support teachers to engage in the types of provision that meet both teacher needs and the system goals. The dimension analyses the various actors involved in providing CPL, the terms on which they engage in its provision and the co-ordination between them. It also examines how various formal and informal ways of engaging in CPL – in schools and in private settings – interact, how they can be effectively combined and how teachers can be supported in drawing on the full continuum of activities to pursue their continuous professional growth. Relevant questions to be addressed in this dimension include:

- How can different forms of CPL provision be supported at different levels?

- How can the format, timing and duration of CPL activities be adapted to support different learning goals and content types most effectively?

- What structures can facilitate teachers' engagement in individual or collaborative CPL practices within, outside and between schools, in both formal and informal settings?

- How can systems ensure sufficient capacity for the provision of relevant learning opportunities, including the supply and training of teacher educators?

- What rules should govern different CPL providers' engagement in the market for teacher training?

Examples of policy issues and questions for analysis (Dimension 3: Provision)

Reorienting provision towards school-based, collaborative CPL formats

Traditionally, professional development offered by public education authorities, teacher education institutions and other tertiary education institutions, professional organisations or private and non-governmental providers has often taken the form of single or short series of externally provided learning courses. Many have questioned and expressed concerns about the effectiveness of these types of provision in influencing teachers' professional learning and development (Garet et al., 2001[70]; Stecher et al., 2018[87]). Results from the OECD's TALIS survey and the research literature concur to suggest that school-based and collaborative forms of professional learning have more promising effects on teaching practices and student achievement (Stoll et al., 2006[61]). Learning with peers from different subjects areas can lead to a stimulating exchange of perspectives and groups that include both novice and experienced teachers facilitate the intergenerational transmission of knowledge. This includes not only the mentoring of novice teachers by experienced peers, but also young teachers sharing new ideas and methods acquired during their initial teacher education with senior colleagues (Geeraerts, Vanhoof and Van den Bossche, 2016[88]).

Nevertheless, participation in activities like peer/self-observation, coaching and networking remains comparatively low. Among the countries participating in TALIS 2018, only about 40% of teachers participated in training based on peer learning and networking, compared to participation rates of over 70% in out-of-school types of training, such as courses or seminars (OECD, 2019, pp. 208, Table I.5.7[3]). In addition, although teachers play a critical role in initiating, collectively shaping and providing collaborative learning opportunities to their peers, many systems fail to recognise and support teachers' role in this process. This often results in a lack of structural supports to facilitate their engagement in sustained, collaborative CPL practices within and across schools.

OECD school systems have pursued a range of different strategies to promote and support teachers' engagement in collaborative CPL, as well as teachers' participation in networks within or beyond their school, which are increasingly recognised as an important location for self-directed collaborative CPL (European Commission, 2017[89]). Given the great variety of forms that these collaborative networks can take (online, blended, offline, local or cross-border networks), it is likely that different strategies are needed to support them. Encouraging collaborative learning through system-level policies will also require authorities to consider the supports that need to be in place for the successful design and implementation of CPL at the school level. Local initiatives are often best placed to ensure that the focus of their training is responding to locally identified needs and takes account of the context of specific schools.

In some systems, such as the French Community of Belgium and Chile, authorities have sought to encourage collaborative work within schools by requiring them to develop strategies on collaboration as part of their school development plans (Santiago et al., 2017[90]; International Relations Directorate of the Federation Wallonia-Brussels, 2016[91]). Other systems, such as Ontario, Canada, have developed large-scale approaches to facilitate effective collaboration within and between schools by codifying such practices through protocols and technical support (OECD, 2019[31]). Other approaches may include investments in school-level personnel with responsibilities to encourage and develop teamwork opportunities.

Recognising teachers' participation in informal or non-traditional CPL (e.g. as counting towards required Professional Development hours), can be another means of encouraging teachers' participation in these practices and lend recognition to their efforts. In Iceland, for example, education authorities are now officially recognising teachers' participation in *Education Plaza*, which offers a variety of social media-based activities that bring together educators, educational administrators, policy makers, the academic community and other stakeholders working in communities of practice, both online and in physical spaces (Vuorikari, 2019[92]).

Scaling and sustaining innovative models of CPL

Education systems have an interest in encouraging school or teacher-driven initiatives as a means to develop effective models of CPL that are responsive to local contexts and needs, as well as in identifying and spreading good practices and innovative ideas. Scholars have pointed to the inherent tensions involved in such efforts to formalise and "scale up" successful practices and the risk of large-scale standardised reforms displacing locally initiated innovation (Giles and Hargreaves, 2006[93]).

Some forms of CPL, such as intensive coaching, have proven difficult to scale up. A recent meta-analysis of 62 studies employing causal designs to estimate the effects of coaching on teachers' instructional practice and student learning outcomes documents improvement on the order of 0.49 standard deviations on instruction and 0.18 standard deviations on achievement (Kraft, Blazar and Hogan, 2018[94]). However, the benefits of coaching were substantially reduced in larger programmes serving over 100 teachers at a time (Kraft, Blazar and Hogan, 2018[94]). Several explanations may account for this variation across coaching programme size. One problem is that teachers' buy-in and motivation to engage in coaching programmes becomes more difficult to sustain once they expand beyond a self-selected group of motivated teachers or schools, e.g. by making participation mandatory or providing strong incentives, which may reduce their effectiveness. Another challenge in scaling up effective coaching programmes is to identify high-quality coaches for larger numbers of teachers. The selection and preparation of trainers and teacher educators can constitute a significant challenge for the provision of high-quality learning opportunities, particularly in new and emerging subjects areas, as well as in regions with less developed infrastructure for professional learning (OECD, 2019[31]).

Governing the market for CPL providers

Many different providers are involved in supporting teachers' professional learning. The market for formal off-site CPL is particularly diverse and differs markedly across systems. In most of the 34 OECD and partner countries with available data for 2013, professional development for lower secondary teachers was provided by both educational institutions (higher education, specialised initial teacher education institutions and schools) and commercial providers. In about two-thirds of countries, public agencies for teachers' professional development, teachers' professional organisations, teacher unions and local

education authorities also provided professional development, and in around a quarter of countries, school inspectorates also played a role in professional development provision (OECD, 2014, pp. 527, Table D7.4c[64]).

Many countries see an increasingly diverse set of CPL providers, including third-party suppliers, competing for public funding and teachers' resources (or, at a minimum, for their limited time). In many cases, teachers are drawing on a range of sources to access materials that support them in their self-directed learning, including online resources, discussion groups, videos, more traditional formats (e.g. guidebooks) and commercial training services. Likewise, schools may find themselves confronted with an increasingly extensive and difficult to navigate set of training options to support their teachers in their school-based CPL practices.

Limited capacity or a desire to encourage greater efficiency and innovation can motivate authorities to enter into partnerships with third-party providers, to officially recognise their activities or to more broadly encourage market dynamics in the provision of CPL. If done effectively, this could help school systems to respond more effectively to changing demands for professional development, especially on newly emerging topics (Vuorikari, 2019, p. 56[92]). To guarantee that training providers and programmes comply with minimum quality requirements, countries might develop certification mechanisms or labels that signal their quality and help teachers or schools to make informed choices about their training investments (OECD, 2019[95]). In some countries, the licensing of programmes or accreditation of providers can also serve as a means to decide on the official recognition of training opportunities or the financial support for teachers' participation. Such licensing or certification procedures can be developed in close collaboration with teachers' professional associations and other stakeholder groups.

3.3.4. Content: How is CPL content selected and developed? (Dimension 4)

In light of changing learning objectives and student needs, school systems need to ensure that CPL content remains relevant and respond to the needs of teachers, schools and the system as a whole. This dimension therefore addresses how the content of CPL is developed and selected, as well as the mechanisms by which it is matched to different actors' learning needs. In particular, this dimension examines the process by which teacher, school and system-wide training and learning needs are identified or forecast and translated into corresponding developmental activities. While some learning needs arise from system-wide processes (e.g. curriculum reforms and other policies that place new demands on teachers), others are identified by teachers themselves and emerge from their specific professional environment and practices. This dimension therefore looks at how various stakeholders are involved in the co-creation of CPL content and how they strike a balance between learning goals arising at the system or school level and teachers' individual learning interests. The dimension also considers how system-wide training content can be aligned (and the role, e.g. of professional standards and competence frameworks in this process) to ensure their internal consistency and their complementarity with ITP.

While the central development of learning content is an effective means to mobilise research capacity, respond to central directives and generate efficiencies, drawing on the richness of teachers' local knowledge and practices is critical for any successful TPL system. This dimension therefore seeks to investigate different strategies to codify and mobilise effective teaching practices and how the tacit knowledge that emerges from teachers' professional experience can benefit professional learning in the wider teaching community. This includes a range of processes and actors to identify effective practices and determine their generalisability or the particular school contexts and communities in which they are applicable. While causal research designs on the effectiveness of teaching

practices are costly and time-intensive, an intermediate level of evidence may consist of collecting insights from multiple teachers and schools (OECD, 2019[31]). In this context, the study will consider the availability of systems to share professional learning content within and across schools, and whether teachers are supported in collaborating across different levels and sectors. There are also questions about how teachers are supported in interpreting CPL content, making them relevant to their own context and applying them in their classroom. Relevant questions to be addressed in this dimension include:

- How can emerging professional learning needs be identified and forecast at different levels of the system, and which actors / stakeholders should be involved in the process?

- What mechanisms can steer the content of the CPL offer to ensure their alignment with these changing needs?

- What role can the CPL offer play in codifying and spreading teachers' tacit knowledge?

- How can teachers be supported in transferring CPL content to their classrooms and applying them in practice?

Examples of policy issues and questions for analysis (Dimension 4: Content)

Forecasting and identifying CPL needs at different levels of the system

The identification of teachers' training needs is a crucial prerequisite to supporting teachers in their professional learning activities and to designing relevant training opportunities (Opfer and Pedder, 2011[96]). In the TALIS 2018 survey, teachers report significant and increasing needs for training, especially on teaching students with special needs, the use of ICT and teaching in a multicultural or multilingual setting. Both the participation rate and the need for training in these areas are reported to have increased over the last five years (OECD, 2019, pp. 165, Figure I.5.6[3]). Further evidence suggests that these training needs are not evenly distributed across the teaching population. The 2013 TALIS survey, for example, suggests that teachers working with SEN students expressed particularly high levels of CPL needs (Cooc, 2018[97]). These training needs may arise for a range of reasons, including changing student needs, technological innovation, changes in teachers' initial education and educational reforms. Many OECD countries have also recognised the importance of promoting students' acquisition of "21st century skills," which will require changes across many elements of the education system, including teacher education and professional development (Guerriero, 2017, p. 247 ff.[98]).

Different mechanisms can help school systems to identify such development needs as they arise, to effectively respond to them, and to feed them into the development of the CPL offer by different actors and across all levels of the system. Some systems have used sector-wide Training Needs Analyses (TNA) to identify gaps in teachers' knowledge and skills to be addressed by CPL (The Education and Training Foundation, 2018[99]) or conducted teacher surveys to this end (Vuorikari, 2019[92]). Since many education reforms (e.g. inclusion policies or curricula reforms) place new demands on teachers, designing tailored learning opportunities to accompany their implementation can be a critical factor in their success (Vuorikari, 2019, p. 57[92]).

Matching CPL content to different actors' needs

To ensure that teachers' learning supports their professional growth requires CPL content to be responsive to teachers' externally identified training needs in line with system goals

and to their personal learning interests. Steering the development of the formal CPL offer along these lines requires effective channels to communicate teachers', schools' and system needs to the actors and institutions responsible for the development and provision of formal training.

Some education systems steer the development of the CPL offer by aligning funding decisions with national priority areas for development. To create a better match between CPL content and teachers' or schools' immediate needs, some are also supporting school-based development initiatives and place a greater emphasis on learning opportunities developed by teachers for teachers. Colombia, for example, recently launched the Scholarships for Teaching Excellence programme, which supports teachers' further studies and encourages them to develop and implement improvement projects centred on classroom practices in their own schools (Radinger et al., 2018[100]). The autonomy that both schools and teachers have in deciding which professional learning content to seek out (or develop themselves) is another important factor that shapes a system's ability to match learning opportunities to teachers' need (OECD, 2014, pp. 520, Table D7.3c[64]).

Building links between initial and continuing teacher education

Although teachers' initial education, induction and CPL have historically been thought of and developed independently, a growing body of research calls for strengthened links between them and their development as part of a continuum of teachers' professional learning (Paniagua and Sánchez-Martí, 2018[101]). Although it is still the exception rather than the norm, some countries have undertaken efforts to ensure that the curricula of ITP, induction programmes and CPL are consistent, well connected and complementary. This holistic approach to teacher education may require systems to systematically develop or strengthen relationships between the stakeholders involved. This can include the establishment of consultation processes, feedback loops between relevant stakeholders and – if these responsibilities are shared across several entities – collaboration between the different actors and stakeholders of initial teacher preparation and continuing professional learning systems (OECD, 2019[6]).

However, there may be limits to the extent to which CPL can build on the skills and knowledge acquired in initial teacher education, since not all teachers can be assumed to have received the same ITE (due to changes in the content and structure of ITE over time, or due to alternative teacher preparation pathways). In these cases, CPL may also need to serve as a means to take stock of what teachers already know and do and close knowledge gaps if necessary. The alignment between CPL and ITP therefore needs to be flexible and differentiated to account for variation in teachers' ITE experience and prior knowledge (OECD, 2019[6]).

Codifying and disseminating teachers' knowledge through CPL

It is important for schools and school systems to codify the knowledge they gain about quality teaching practices in order to enable educators to retain and build on this knowledge base, even when staff transitions occur (OECD, 2019[31]). Continuing professional learning plays an important role in systems' ability to foster both the internal and external development of teachers' knowledge. CPL activities can support each teacher in "making their beliefs, ideas and practices explicit" (Cordingley, 2008[102]), that is, in codifying their tacit knowledge. At the same time, CPL practices can spread effective pedagogical practices by drawing on a knowledge base that practitioners can actively contribute to alongside the research community and other stakeholders. Research findings on the nature of student learning and teaching thus form part of a dynamic knowledge base that is

transferred to, and co-constructed by, teachers through their individual and collective learning (Guerriero, 2017, p. 261[98]).

Strengthening the role of CPL in the codification and dissemination of teachers' knowledge requires strong links and an ongoing exchange between teachers and their professional organisations, the research community and teacher training institutions (OECD, 2019[31]). It may also involve the use of knowledge brokers facilitating this exchange (e.g. in the form of pedagogical advisory networks), or ICT platforms that allow teachers to codify their knowledge and disseminate it across schools. In Austria, for example, the federal ministry of education facilitates learning among New Secondary Schools (*Neue Mittelschulen*) through its Centre for Learning Schools (*Bundeszentrum für Lernende Schulen*), which provides a virtual networking and learning space to connect teacher leaders and empower them to exchange their knowledge and expertise in the areas of curriculum and instructional development (Nusche et al., 2016[75]).

3.3.5. Quality: How is the quality of CPL ensured? (Dimension 5)

This dimension is concerned with how education authorities, schools and teachers can assess and raise the quality of CPL. To use available resources to the greatest possible effect, it is critical to ensure the quality of professional learning. However, this presents a range of challenges, given the variety of CPL goals, settings, providers, actors and formats. In light of these difficulties, this dimension considers (1) how the various providers and actors in CPL systems define the objectives and desired quality of professional learning activities, (2) how they measure and evaluate the results of CPL activities, and (3) how policy approaches and measures to improve CPL systems are developed on this basis.

The dimension examines, for example, how guidelines and standards for high-quality CPL are developed across diverse providers and actors, for different types of provision and applied at different levels of the system. It also covers the use of accountability and quality assurance mechanisms, including the accreditation of external provides as well as the evaluation of programmes, materials and school-based initiatives. The TPL study will also consider how external quality assurance mechanisms are linked to individual, school and system-wide (self-)evaluation and improvement plans. Striking a balance between the reliance on external accountability and professional self-regulation, as well as balancing a focus on outcomes with attention to learning inputs will be important challenges to consider in this context. Relevant questions to be addressed in this dimension include:

- What are the goals of CPL and what parameters can be used to measure its effectiveness?

- How can different stakeholders contribute to setting these goals, identifying these parameters and evaluating the quality of CPL?

- How can CPL practices be integrated into a culture of continuous growth at the level of the teacher, the school and beyond?

- What systems are best suited to monitor the quality of different types of CPL, including new formats like MOOCs (and for teachers to monitor their self-directed CPL)?

- What accountability structures around CPL should exist for teachers (e.g. appraisal), schools (e.g. inspections) and external providers (e.g. accreditation)?

Examples of policy issues and questions for analysis (Dimension 5: Quality)

Developing standards for high-quality CPL

For teachers' CPL to have the desired effect on teaching practices and student learning, it needs to be of high quality, regardless of the format it takes or the setting in which it occurs. In some OECD countries, central teacher development institutions play an important role in steering the provision of CPL, maintaining oversight and ensuring quality by co-ordinating and accrediting the supply. In various systems, however, there is uncertainty about the quality of the professional learning provisions and the processes designed to ensure it. In some cases, these challenges are aggravated by the decentralised development of learning contents and the highly fragmented landscape of professional development providers. The examples presented in Box 3.2 illustrate how quality assurance systems can support effective professional learning in the context of both centralised and decentralised privision.

Developing standards for high-quality professional learning in close collaboration with schools and other stakeholders, in particular teachers themselves, may be a powerful means to guide the development of CPL practices and align different quality assurance instruments to raise the quality of teachers' CPL. Nevertheless, the use of standards for professional learning is less widespread than e.g. in initial teacher education (Révai, 2018[103]). In light of the great diversity of CPL practices, effective standards would not only need to take into account a range of different desirable outcomes, but also to meaningfully apply to different forms of CPL engagement, including new formats like MOOCs. Not all forms of professional development are equally amenable to a standards-based approach. Nevertheless, even teachers' self-directed learning can be supported through guidelines and supports that help teachers in assessing the quality of their learning process, in monitoring their progress and ultimately in improving the effectiveness of their self-directed CPL. Professional standards, for example, can help teachers to identify their learning needs and constitute a reference point that they can measure their progress against.

Box 3.2. Examples of CPL quality assurance systems in OECD countries

Using a national framework for high-quality professional learning in Australia

Australia offers a model of comprehensive application of the professional standards to facilitate teachers' high-quality professional learning toward improving students' learning outcomes.

Australia has developed the Australian Professional Standards for Teachers (the Standards), which stands as a public statement for what constitutes quality teaching, and articulates what teachers are expected to know and be able to do at different stages of their career. Developed by the Australian Institute for Teaching and School Leadership (AITSL), the Standards are a nationally agreed quality assurance mechanism to provide a common understanding and language between teachers, schools, teacher educators and the public across Australia. Since Australia functions on a model of federalism, the responsibility for education falls between the federal government and states/territories. Hence, not all states and territories use the Standards for formal accreditation of teachers' professional learning. However, the Standards are linked to teacher registration requirements throughout Australia, and help teachers engage in professional learning that is aligned with the quality and common criteria elaborated in the Standards.

Australia also invested in exploring approaches to measure teacher impact on student learning and attainment, as well as the use of such measurement tools to improve teacher practice. To provide a framework for teacher assessment tools, the University of Melbourne, for example, has investigated key characteristics of effective teachers and teaching. This research provides references for school systems, leaders and teachers as well as the broader educational research community, to assist the development of policies and systems that support teachers to identify ways to continually improve their practice and impact. With the aim to promote excellence in the teaching profession and school leadership, the Australian government funded AITSL to develop and test practical applications of these findings so that teachers are well supported to determine their proficiency against the Standards and identify areas for improvement.

AITSL has also developed national policies to support the high-quality professional learning of teachers, including the Australian Charter for the Professional Learning of Teachers and School Leaders (the Charter) and the Australian Teacher Performance and Development Framework (the Framework). The Charter defines the characteristics of high-quality professional learning for teachers; the Framework supports school leaders to develop a positive performance and development culture in their school. The Charter and Framework align to support the development of conditions that enable high-quality professional learning for the improvement of teaching, and the benefit of students.

AITSL also offers online resources to help teachers engage in high-quality professional learning aligned to both the Standards and teachers' individual needs. For example, AITSL has launched an online Teacher Self-Assessment Tool with which teachers can review their practice against the Standards using a 30-minute questionnaire, and receive personalised feedback. The tool may be used for informal purposes of self-reflection, identifying strengths and areas for further development, professional learning planning or to set career goals. It can also be used as part of formal processes, such as performance and development goal-setting, performance reviews and certification at Highly Accomplished and Lead Teacher levels of the Standards.

More recently, AITSL has published the 'Improving teacher professional learning' webpage, which includes a suite of resources supporting the central 'High-Quality Professional Learning cycle.' The cycle defines a process through which teachers can identify their learning needs, select and undertake professional learning, apply it in their context, and evaluate its impact. Resources supporting implementation of the cycle include practical guides, video case studies and research reports underpinning the evidence for AITSL's work in the teacher professional learning space.

Today, AITSL works in collaboration with states and territories to scope and develop an online community for teachers where teachers can learn from each other by drawing on quality resources. Furthermore, under the COVID-19 pandemic, AITSL also provided a best practice evidence guide for teachers to learn how to set up online learning and what advice to offer to students and parents learning from home.

Quality assurance under Norway's decentralised in-service competence development model

In 2017, Norway introduced a new model for teachers' in-service competence development, which emphasises the local analysis of training needs and collective forms of professional learning. National authorities provide financial support to teachers engaging in credit-giving further education on priority topics, as well as to local authorities organising collective in-service professional development. Under the new model, local "school owners" are responsible for identifying their teachers' professional

development needs and drawing up professional learning plans in co-operation with local universities. These plans are then discussed at "collaboration forums" of stakeholder representatives (local universities, municipality associations, teacher representatives and local businesses) convened by governors at the county level. Once training priorities are agreed, county governors allocate the funding to local authorities. This decentralised scheme is complemented by a follow-up scheme, which provides state support and guidance to municipalities and county authorities that report weak results in key education and training areas. A third pillar of the model is an innovation scheme which brings together municipalities and research communities to develop and test learning interventions in line with evaluation and quality requirements defined by the state.

To evaluate and improve the effectiveness of the decentralised professional learning initiatives, the Norwegian Directorate for Education and Training has developed a set of five quality criteria to guide its discussions with providers and stakeholders: Sustained duration; opportunities for active learning; coherence with teachers' knowledge; beliefs and education policies, opportunities for collaborative learning; and a focus on subject content and pedagogical content knowledge. County governors provide annual reports and the Directorate conducts surveys for school owners, school leaders and teachers to elicit information on their involvement in continuing professional learning. This information is complemented with data on students' learning outcomes and surveys on their learning experience, all of which schools can draw on to evaluate their teachers' professional learning needs. In addition, the Directorate commissioned an external evaluation to assess the impact of the New Competence Development Model.

Sources: Australian Institute for Teaching and School Leadership (2011[104]), *Australian Professional Standards for Teachers*, AITSL; Melbourne; Révai, N. (2018[105]), "What difference do standards make to educating teachers?: A review with case studies on Australia, Estonia and Singapore", *OECD Education Working Papers*, No. 174, OECD Publishing, Paris, https://dx.doi.org/10.1787/f1cb24d5-en; OECD (2019[106]), *Improving School Quality in Norway: The New Competence Development Model, Implementing Education Policies*, OECD Publishing, Paris, https://doi.org/10.1787/179d4ded-en.

Monitoring the effectiveness of different types of CPL

Monitoring the quality of CPL provisions and providers can be a challenging task, given the great variety of different CPL formats and intended outcomes as well as the difficulty to obtain high-quality information on many aspects required for a thorough evaluation. Many countries lack strong systems for tracking their teachers' engagement in CPL, let alone for analysing its quality and impact (Darling-Hammond, Hyler and Gardner, 2017, p. 22[19]; Shewbridge et al., 2016[107]). Nevertheless, efforts to monitor the effectiveness of CPL can make an important contribution to improving the quality of teachers' professional learning. Effective monitoring mechanisms can be a means to evaluate whether teachers' learning needs are met, to increase the accountability of providers, and to empower teachers, school leaders and others to choose the right form of CPL to match their needs. A critical condition for monitoring the quality of teachers' professional learning are strong channels of communication and feedback loops between relevant stakeholders, including teacher training institutions and teachers' professional associations.

Another challenge in monitoring the effectiveness of CPL is defining an adequate set of parameters to evaluate its success, given the diversity of its formats and the wide range of potentially desired outcomes. Many evaluations of CPL programmes focus on student achievement gains in standardised tests as the primary indicator of effectiveness (Darling-Hammond, Hyler and Gardner, 2017[19]), which may be too narrow to capture its impact on

other student outcomes, but also other desirable effects on teacher's beliefs, attitudes or classroom practices (Vuorikari, 2019[92]). Likewise, many informal forms of professional learning, such as teachers' self-directed study or engagement in professional learning communities (PLCs) and peer feedback currently elude the systematic evaluation of their effectiveness and may require different, teacher-driven approaches to monitoring, e.g. by supporting teachers' self-evaluation practices.

Integrating CPL practices into school and system-level improvement processes

The professional growth of teachers is closely connected to the improvement of the school they are working in and that of the system as a whole. Integrating CPL practices into improvement plans at the level of the teacher, the school and beyond can ensure that teachers' learning practices are informed by both their individual needs and those of their schools and the system more widely (OECD, 2013[59]). It also ensures that colleagues can collaborate based on a shared set of goals and actively contribute to their school's improvement. Conversely, making CPL an explicit part of schools' improvement plans can ensure that their goal-setting goes hand in hand with the development of embedded learning opportunities that help teachers and leaders gain the skills and knowledge to achieve these goals (OECD, 2019[31]). While many school systems expect principals to create yearly or multi-year strategies to improve learning outcomes for students, it is less common for them to create a corresponding professional development plan for their school (OECD, 2016, p. 455 and Table D6.3 and D6.4[108]). Such development plans might involve additional collaboration time in teachers' schedules, ongoing professional development courses, support networks of school sharing similar learning goals, electronic teaching libraries, and other tools.

Creating effective quality assurance and accountability structures for CPL providers

Systems can use a range of mechanisms at different levels to hold CPL providers to account for the quality of their offer. Effective accountability structures may look different depending on the type of CPL offer in question, but also the terms upon which teachers access these learning opportunities. In a number of countries, the use of public funding for professional learning activities is restricted to programmes provided by a few organisations (teacher education institutions or agencies specialising in professional development). Especially in those countries where participation in professional development is mandated, there may be little incentives for CPL providers to engage in innovation and quality improvement unless there are complementary quality assurance mechanisms (e.g. accreditation or licensing standards for programmes and providers). Other systems rely on an open market for formal professional development activities or encourage teachers to draw on the services of private providers in order to stimulate quality improvements through competition. For these mechanisms to work effectively, however, teachers and school leaders may need to be provided with sufficient information on the quality of CPL programmes in order to make empowered choices in this context (OECD, 2014, p. 523[64]; OECD, 2005[109]).

3.4. Levels of analysis

To understand teachers' professional learning, it is important to acknowledge the reciprocal relationships and complex interactions between actors at all levels contributing to the process (Opfer and Pedder, 2011[96]). For each of the five analytical dimension described above, the TPL study's framework considers three levels of analysis: A) teachers – individually and collectively – who can be both recipients and providers of TPL, for

example through peer coaching, professional learning communities or teacher networks, B) the school, including its leadership team and C) the system, including a range of actors who shape teachers' professional learning, such as different levels of the school administration, higher education institutions, teacher unions or professional associations and private training providers (see Figure 3.1).

Figure 3.1. Levels of analysis and analytical dimensions
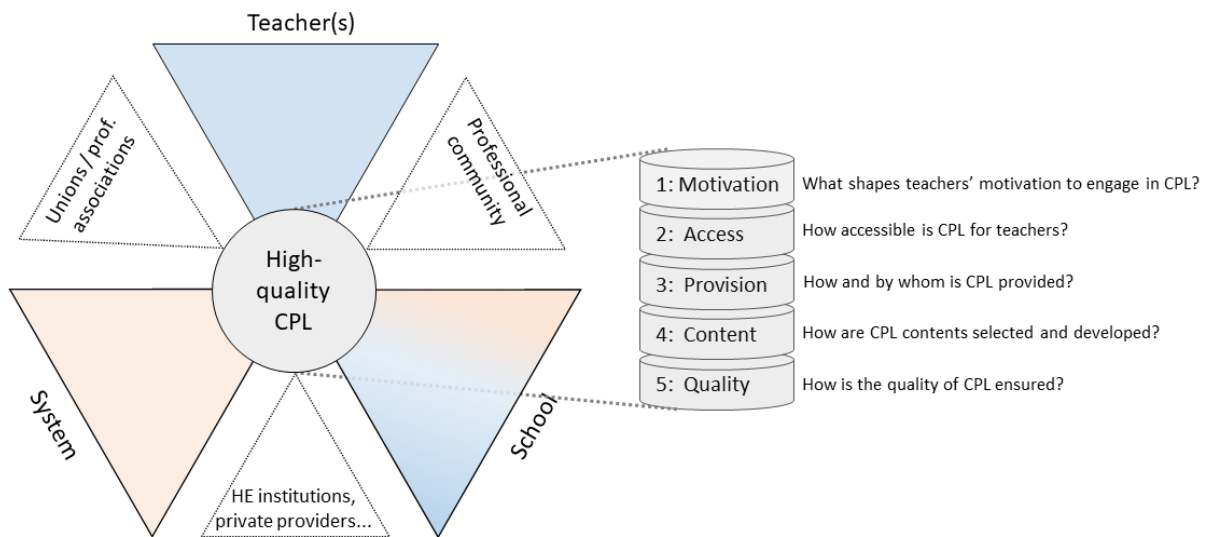
3.4.1. Teacher(s)

Although individual teachers may be primarily thought of as recipients of CPL who interpret and respond to incentives in light of their practice and career development (Dimension 1), they can play a critical and active role across all dimensions of the TPL study's analytical framework. Teachers are important providers of CPL, e.g. through formal or informal mentorship activities (D-3); they can shape the content of CPL by providing feedback on their needs or actively engaging in the development of learning contents (D-4); they face and work to overcome barriers and invest resources to access CPL (D-2); and they can contribute to quality assurance by providing feedback on the quality of their CPL through different channels, including their formative appraisal (D-5).

Teachers also play a vital *collective* role in CPL systems. The professional teacher community plays a central role in creating a vision for teacher professionalism and creating an ethos of continuous improvement that motivates teachers to engage in CPL (D-1). The teacher community is also an important co-creator and provider of professional learning opportunities (D-3). This can take various forms, ranging from informal professional exchange in schools or online platforms to collaborative work in professional learning communities, and formalised training provided by teachers' professional associations and unions. The TPL study will also consider the role of the organised teacher profession as a stakeholder representing teachers' professional interests and engaging in the policy-making process, as well as the responsibilities they assume for communicating teachers' professional needs (D-4) and helping teachers access learning opportunities, e.g. through inter-school teacher networks (D-2).

3.4.2. Schools and leadership teams

Schools are an important site to build trust among teachers and foster a culture of continuous improvement. Teachers' training needs and the successful translation of their professional learning into school-wide improvement are highly context-dependent. Therefore, it is important that teachers' professional learning activities are closely linked to their school contexts, even when these activities are externally provided. At this school-system interface, school leadership teams are a key intermediary responsible for ensuring that teachers acquire new expertise required by system-level policies while also ensuring teachers' continuous learning to respond to local and school priorities. School leadership teams have an important share of responsibility for ensuring that teachers remain motivated to engage in professional growth (D-1). Schools are also one of the sites where teachers' professional learning takes place and they play an important role in its delivery. As part of their instructional leadership role, principals and their leadership teams may play an important role in assigning or proposing development opportunities and initiating school-based learning activities (D-3) based on the identified needs of their teachers (D-4). The TPL study also considers inequities in the access to professional learning opportunities across schools and how school-level decisions (e.g. on the management of staff time) affect teachers' opportunities to engage in collaborative practices and other forms of peer learning (D-2). Finally, schools occupy a central position in the quality assurance process. They can be held accountable for the improvement of their staff while at the same time exercising their role in monitoring and evaluating their continuous professional growth (D-5).

3.4.3. Systems

At the system level, the TPL study will consider the role of educational authorities, as well as HE institutions and other external CPL providers. These actors can take a wide range of roles in CPL systems. HE institutions, for example, are an intermediate actor between education authorities and schools, often bringing nationally defined content to schools while also working with schools to understand and mobilise knowledge that emerges within schools. Central governments, regional and local authorities play a critical role setting policies and making decisions that affect teachers' continuing professional learning. This may include legislation or key strategic documents setting out the vision and priorities for teachers' professional learning. It may also include policies affecting teachers' requirements to engage in CPL or their entitlements to do so, as well as any links to compensation and career progression (D-1). Authorities at the central, regional and local level can be important providers of teachers' professional learning, too. This includes training in schools (e.g. through the deployment or funding of instructional coaches and learning consultants) and off site, e.g. in the form of formal qualification courses, training seminars or certification programmes, which may be delivered centrally through HE institutions and various other providers (D-3). In many systems, authorities at different levels of the system also play an important role in supporting teachers' access to CPL by designing funding mechanisms for teachers' engagement in continuing education or providing accessible information on available CPL opportunities (D-2). System-level authorities can also directly intervene in the quality assurance process through accreditation requirements for CPL programmes and providers; or indirectly by setting frameworks for quality assurance processes at the school level (e.g. through the criteria included in school inspection frameworks) (D-5).

3.5. CPL outcomes

On average across TALIS 2018 countries, 83% of teachers report that professional development activities have had a positive impact on their teaching practices in the past

12 months (ranging from 69% to 92% across countries) (OECD, 2019, pp. 208, Table I.5.15[3]). These teacher self-reports appear to stand in contrast with the growing sense that some widespread approaches to teachers' professional learning have failed to deliver on their promises and high-profile reports highlighting the limited evidence on the effectiveness of traditional teacher professional development (Yoon et al., 2007[110]; TNPT, 2015[111]). At the same time, while traditional models of large-scale, top-down development based on short-term courses may be of limited effectiveness, recent research has provided cause for optimism and generated convincing evidence that some forms of CPL do increase teacher effectiveness. This particularly includes context-specific and school-based interventions that are sustained over time and involve individualised coaching (Papay et al., 2016[18]; Powell et al., 2010[112]; Allen et al., 2011[113]). Strong professional learning environments in schools have also shown to help teachers improve their effectiveness well beyond the first ten years on the job, thus challenging the widely held conception that teachers reach a "performance plateau" after about five years of experience (Kraft and Papay, 2014[13]).

Besides quality teaching, CPL can have a range of desirable secondary effects, e.g. related to teachers' well-being and other desirable outcomes, such as improved job satisfaction and retention. While many of these secondary effects in turn influence teachers' capacity to engage in quality teaching, they are also important for their own sake. The TPL study therefore proposes to consider them as distinct outcomes. As illustrated in Figure 3.2 and elaborated below, improved teachers' well-being may also – in turn – affect their motivation to engage in further professional learning. The following sections are aligned with and draw on definitions developed as part of the OECD Teacher Well-being for Quality Teaching Project (Viac and Fraser, 2020[114]).

Figure 3.2. Outcomes of continuing professional learning
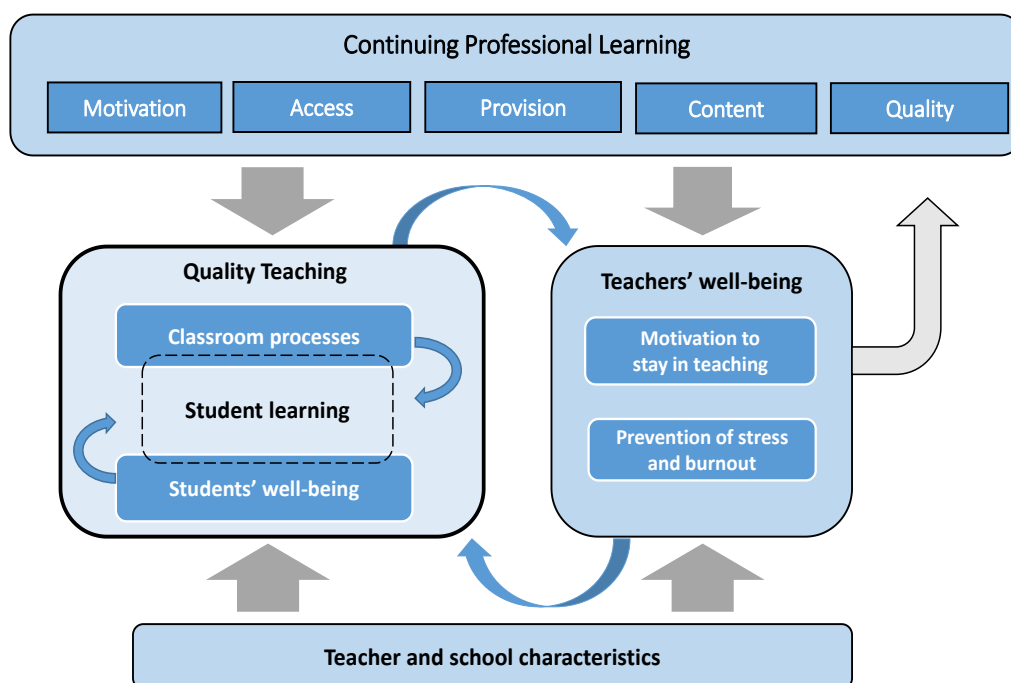
Note: Adapted from Viac, C. and P. Fraser (2020), "Teachers' well-being: A framework for data collection and analysis", *OECD Education Working Papers*, No. 213, OECD Publishing, Paris, https://doi.org/10.1787/c36fc9d3-en.

3.5.1. Quality teaching

Quality teaching here denotes the teachers' ability to be effective in the workplace and positively influence student learning and other desired non-cognitive outcomes (such as student well-being and motivation). The ability of teachers to provide quality teaching is widely recognised as one of the most important factors for the success of education systems (Schleicher, 2018[115]; Darling-Hammond et al., 2017[116]). Research indicates that effective teachers can improve not only students' educational outcomes (Rivkin, Hanushek and Kain, 2005[117]), but also their long-term economic outcomes (Chetty, Friedman and Rockoff, 2014[118]), as well as their self-efficacy and their happiness (Blazar and Kraft, 2017[119]). Continuing professional learning, in turn, can help teachers to improve in some of the areas most closely associated with their effectiveness, including their content knowledge and their pedagogical content knowledge (Opfer, 2016[15]; Guerriero, 2017[98]; Metzler and Woessmann, 2012[120]).

For the purpose of this study, the notion of student learning is defined broadly to encompass their acquisition of academic skills but also that of social, emotional and ethical skills. Beyond this, teachers are expected to encourage students' engagement and responsibility, to respond to students from different backgrounds with different needs, and to ensure that students feel valued and included (OECD, 2019[6]). Following the OECD Teacher Well-being for Quality Teaching Project, quality teaching is expected to promote student learning through its positive influence on *classroom processes* and *students' well-being*.

CPL impact on classroom processes

Classroom processes here refers to all teacher practices in the classroom that may lead to sustaining or improving students' learning. Over the past decade, research has consistently shown that the variance in pupil outcomes is greater at the classroom level than at the school level and that much of the classroom-level variance can be explained by what teachers do in the classroom (Muijs et al., 2014[121]). Based on a recent literature review (Viac and Fraser, 2020[114]), the classroom processes that matter the most for students' learning are 1) students' active engagement with teachers; 2) the reinforcement of content and feedback; 3) the classroom climate; and 4) teacher co-operation. The TPL study is therefore interested in the extent to which teachers' CPL can help them acquire the knowledge, skills, and practices necessary to put these four classroom processes into practice.

Evidence from TALIS 2018 suggests that teachers who participated in impactful professional development are more confident in their teaching ability. Teachers who received training focused on teaching in diverse classrooms also report higher levels of self-efficacy in teaching in diverse environments. In addition, teachers participating in training focusing on the implementation of pedagogical practices tend to report a more frequent implementation of effective practices (OECD, 2019, pp. 208, Table I.5.14[3]). Since the effects of CPL have been shown to be mediated by the school environment as well as teachers' prior knowledge and beliefs, it will be important to consider these contextual school and teacher characteristics (Opfer, 2016[15]; Richardson, 2003[122]; Fishman et al., 2003[123]).

CPL impact on students' well-being

Students' well-being here refers collectively to the desirable outcomes of instruction for students – following the OECD Teacher Well-being for Quality Teaching Project. This includes students' academic performance but also their motivation, confidence and life satisfaction. Building strong and supportive relationships with their teachers allows students to feel safer in the school setting, feel more competent, form more positive

connections with their peers, and make greater academic gains. In contrast, conflictual relationships with teachers may impede students' ability to draw on the academic and social resources offered within classrooms and schools, setting them on a trajectory towards school failure (Pianta and Hamre, 2009[124]). A recent literature review has identified four areas affected by students' well-being: 1) their achievement; 2) their motivation and attitude towards learning; 3) their self-efficacy; and 4) their subjective well-being (Viac and Fraser, 2020[114]). Accordingly, the TPL study will consider teachers' ability to foster students' well-being as an important outcome of effective CPL.

CPL impact on student achievement

Student achievement is affected by a great variety of factors, many of which are beyond the control of teachers (e.g. students' socio-economic status and access to support at home). As described above, insofar as teachers do have a profound impact on student achievement, it operates primarily *through* their ability to improve classroom processes and students' well-being. This ability of teachers, in turn, can be enhanced through CPL. The impact of CPL on student achievement is therefore not direct, but rather the product of a variety of mediated effects with different underlying mechanisms. Nevertheless, student achievement has been the primary and often the only outcome considered in empirical studies of CPL effectiveness. The TPL study seeks to widen this perspective by explicitly acknowledging the complexity of this relationship and contextualising student achievement within a structure of related (and potentially independently desirable) CPL outcomes that tend to receive less attention.

3.5.2. Other outcomes

CPL impact on teachers' well-being and retention

In teaching, as in any other professional domain, opportunities for training and learning are an important part of what makes a job fulfilling and satisfying. The OECD's *Guidelines for Measuring the Quality of the Working Environment*, for example, consider on-the-job training as one of the major job resources, alongside work autonomy, perceived opportunity for career advancement, and intrinsic rewards. These resources contribute to the quality of the working environment by helping employees to balance their professional demands and thereby avoid job strain (OECD, 2017[81]). Evidence from TALIS 2018 and previous OECD research confirm that teachers' participation in impactful professional development is associated with an improved sense of confidence and job satisfaction (OECD, 2016[37]; OECD, 2014[125]; OECD, 2019, p. 160[3]). This may increase teachers' motivation to invest in their long-term professional growth and their willingness to engage in additional CPL, thereby creating a virtuous circle of improvement (Viac and Fraser, 2020[114]). Teachers' well-being also has a range of desirable corollaries related to their capacity to engage in high-quality teaching and willingness to stay in the profession. Excessive teacher turnover can be profoundly disruptive and impairs student learning, especially in schools serving disadvantaged communities (Ronfeldt, Loeb and Wyckoff, 2013[126]). High-quality induction programmes have been shown to reduce dropout rates among early career teachers (OECD, 2019[6]). By extension, CPL may help to motivate and retain effective teachers throughout their career by boosting their efficacy and job satisfaction.

CPL impact on employee mobility and skills obsolescence

Within the wider economy, training and learning opportunities for adults (both on and off the job) are crucial to prevent skill obsolescence, to increase employees' professional upwards-mobility and to reduce their risk of unemployment (OECD, 2017, p. 140[81]).

Although building skills that can be applied outside of the teaching context is not usually a focus of teachers' CPL, it can play an important role in preparing teachers for positions in school leadership or educational administration. Similar considerations might also be at play in systems that seek to expand teachers' horizontal career structures and permit them to engage in specialised roles within the school (e.g. as librarians or ICT specialists). While these roles may be assumed on a part-time basis and not spell the end to a teacher's career in school education, they may require skills that go beyond conventional teaching practice.

4. Mapping available OECD data to the TPL Framework

In this section, available OECD survey and indicator data will be mapped to the TPL study's conceptual framework. This exercise serves to explore how existing data might be mobilised to inform the study's diagnoses and to identify gap areas that are not currently covered by OECD data. Based on the results of the mapping, the TPL study will calibrate its own data collection to complement existing information with the help of Country Background Reports, stakeholder interviews, desk research and data from national data and international sources, such as the European Commission's Eurydice Network.

The following OECD data sources were considered in the mapping exercise:

- Teaching and Learning International Survey (TALIS) 2013;

- Teaching and Learning International Survey (TALIS) 2018;

- Programme for International Student Assessment (PISA) 2015;

- Programme for International Student Assessment (PISA) 2018;

- Indicators of Education Systems (INES)/OECD Education at a Glance (EAG);

- OECD School Resources Review.

The following sections provide a broad overview of the availability of OECD indicators and questionnaire items related to each of the TPL study's five analytical dimensions. All indicators and questionnaire items were classified according to the dimension(s) they relate to and the level(s) of analysis that they inform.[1] The full list of coded OECD indicators and questionnaire items related to teachers' continuing professional learning is presented in Annex B. Table 4.2 to Table 4.6 in the sections below summarise this information and present the number of OECD indicators or survey items related to each level of analysis. The shading of the cells indicates the distribution of instruments related to this dimension across sources and levels of analysis (with green for higher counts and red for lower counts). Since each indicator or survey item can relate to more than one level of analysis, the overall sum of the cell counts may not be equal to the number of indicators and survey items included in the analysis.

The summary heat map presented in Table 4.1 below provides an overview of the distribution of OECD instruments from all sources across all five dimensions of the TPL Study. It is important to stress that the number of indicators related to each dimension does not, in and of itself, provide sufficient ground to infer much about the breadth or depth of

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[1] The level of analysis is not used to refer to the level at which the data is collected, but rather whether the collected information is about actors or policies at the system, school or individual level. At times, the relevant level of analysis was ambiguous or could not be identified with certainty. In the TALIS survey, for example, teachers' response that they "received scheduled time for activities that took place during regular working hours at this school" could be indicative of a system-wide policy or a school-level practice.

their coverage. Yet, some of the patterns visible in this heat map, e.g. the relatively small number of indicators related to Dimension 5 (Quality), do correspond to gap areas that will be important for the TPL Study to address.

Table 4.1. OECD instruments covering the dimensions of the TPL Study

Level of analysis	Dimension					Total
	1	2	3	4	5	
System	27	52	43	9	6	137
School	29	34	34	24	18	139
Teacher	30	74	80	141	40	365
Total	86	160	157	174	64	

Sources: see Annex B.

The coverage of the indicators and survey items presented below varies across the OECD sources, both with respect to the levels of education and the countries and economies that are included: INES indicators cover OECD members and partner countries. While a limited set of INES indicators related to professional learning have been collected repeatedly over the years, many relevant indicators were collected in a one-off in-depth data collection for EAG 2014. Data collected through the School Resources Review covers the 18 countries and economies that participated in the study's qualitative data collection. TALIS 2013 data covers 24 OECD countries and 10 partner countries and economies, while TALIS 2018 data covers 31 OECD countries and 17 partner countries and economies. TALIS data focuses on ISCED 2, although some countries also administered the questionnaire to teachers at the primary and upper secondary level.

Data collected through the PISA 2015 principal questionnaire covers all 35 OECD member countries at the time, as well as 37 partner countries and economies. Data collected through the PISA 2018 principal questionnaire covers all 36 OECD countries as well as 43 partner countries and economies. However, since the PISA teacher questionnaire was only administered by a subset of countries and economies (19 countries and economies in 2015 and 2018 respectively), the coverage of many questions related to teachers' professional learning is more limited. The data collected through PISA refers to the teachers and schools of 15-year-old students.

4.1. Motivation: What shapes teachers' motivation to engage in CPL? (Dimension 1)

Table 4.2. OECD instruments covering Dimension 1 (Motivation)

Source	Level of analysis			Total
	System	School	Teacher	
TALIS 2013	1	5	5	11
TALIS 2018	1	4	7	12
PISA 2015	0	3	3	6
PISA 2018	0	0	1	1
INES	20	16	12	48
SRR	5	1	2	8
Total	27	29	30	

Note: SRR refers to data collected through the OECD School Resources Review.
Sources: see Annex B.

4.1.1. Coverage

OECD survey data and indicators cover a range of important aspects included under the TPL study's Dimension 1 (Motivation). The majority of available data are system-level indicators collected by the OECD's INES programme and published through *Education at a Glance*. This includes information on central requirements for teachers' engagement in PD (EAG 2018), the minimum duration required and its impact on promotions or the renewal of certifications (EAG 2014). INES indicators also cover financial rewards, such as salary increases, that may incentivise teachers to engage in PD, as well as the actors responsible for determining teachers' eligibility for these rewards (EAG 2019) and their size (EAG 2015). More recently, the School Resources Review has systematically collected in-depth information on the financial and career incentives for teachers' participation in learning activities. In addition, countries participating in the review provided information on the training that aspiring principals are required to undergo prior to their appointment. Finally, OECD system-level indicators include information on whether teachers are required to support their peers, serving as mentors for new teachers or offering induction activities.

This information is complemented by some limited survey data, including teachers' reports of whether they are required to engage in PD activities (PISA 2015) and the salary supplements, salary increases or non-monetary professional benefits they receive for their participation (TALIS 2013 and 2018). In addition, TALIS asked teachers whether their participation was circumscribed by a lack of incentives (TALIS 2013 and 2018).

Other TALIS survey items tap into the extent to which teachers' professional learning is embedded within the school evaluation and teacher appraisal cycle. This includes questions, such as whether each teacher received a training plan following their appraisal, whether weaknesses in teaching and measures to remedy them were discussed with teachers and whether schools appointed mentors to help teachers improve following their appraisal (TALIS). Other survey items track the extent to which schools implemented measures in the area of teachers' continuing professional learning based on their last internal school evaluation (PISA 2015).

Both TALIS and PISA also provide some insight into principals' efforts to instil a sense of responsibility or intrinsic motivation for professional growth among their teachers: Principals were asked whether they seek to ensure that teachers take responsibility for improving their teaching skills (TALIS 2013 and 2018) and whether they build a school culture of continuous improvement (PISA 2015). Conversely, TALIS also asks teachers whether their participation was hindered by a lack of employer support (TALIS 2013 and 2018).

4.1.2. Data limitations and gaps

The data mapping exercise shows that there is no internationally comparable OECD data on a number of subjects falling under the TPL study's Dimension 1 (Motivation). Most of the data collected relates to requirements and incentives aimed at motivating teachers' engagement in specific professional learning formats (usually formal, externally provided training courses). By contrast, incentives oriented towards the outcomes (rather than the inputs) of professional learning or aimed at fostering the autonomous engagement of teachers have received less attention in existing data collections. At the same time, most indicators focus on system-wide incentives while few provide an insight into school-level practices and the ways in which principals may encourage their teachers to take part in professional learning.

Although OECD survey data provides some insight into the types of learning that teachers considered impactful, as well as some of the reasons for their limited engagement in professional development, we have little information on what positively motivates teachers to engage in different kinds of learning activities and the sense of responsibility or ownership they feel for their continuous improvement. This extends to the different ways in which education authorities or the profession itself can shape the cultural and normative expectations around teachers' continuing improvement, e.g. by emphasising its importance in professional standards or competence frameworks.

The topic of leadership-oriented training has also received relatively little coverage in OECD data collections and has only been addressed indirectly, despite the motivation that teachers may derive from seeing professional learning as a path to leadership. TALIS asked principals whether they received instructional leadership training prior to their appointment and the School Resources Review collected data on pre-service training requirements for school leaders. Yet, there is no data on teachers' access to or engagement in learning or training activities that would allow them to cultivate and exercise leadership capacity, broadly conceived.

Finally, there is little information on the incentives that may motivate other actors in the system, including schools, professional organisations, HE institutions and private actors have to engage in or promote the provision of CPL.

4.2. Access: How accessible is CPL for teachers? (Dimension 2)

Table 4.3. OECD instruments covering Dimension 2 (Access)

Source	Level of analysis			Total
	System	School	Teacher	
TALIS 2013	9	8	22	39
TALIS 2018	9	7	25	41
PISA 2015	4	4	4	12
PISA 2018	8	5	11	24
INES	14	6	9	29
SRR	8	3	1	12
Total	52	33	72	

Sources: see Annex B.

4.2.1. Coverage

The OECD's indicators collections and teacher surveys (particularly TALIS, but also the latest wave of PISA) provide critical comparative information on some central aspects of the TPL framework's Dimension 2 (Access). Most importantly, this includes rich data on teachers' reported engagement in various professional learning formats – both school-embedded and external – as well as the time they engage in PD each week (TALIS 2013 and 2018). TALIS also asked teachers whether they have access to some specific learning formats, such as mentorship, independent of whether or not they take advantage of them. INES indicators provide additional system-level data on the proportion of teachers engaged in PD and their average number of PD days (EAG 2014). However, this information is only available for a few countries.

The OECD teacher surveys provide information on some of the barriers that individual teachers report to encounter when engaging in professional learning, such as high costs,

scheduling conflicts or conflicting responsibilities. In addition, TALIS 2013 asked teachers whether they had to cover some or all of the cost of their professional development themselves.

There is also some data on the system-wide supports intended to help teachers overcome these barriers and widen their access to professional learning opportunities. These notably include the financial assistance that teachers receive, as well as non-monetary support in the form of reduced teaching hours, scheduled PD time or study leave (TALIS 2013 and 2018). Teachers' reports on the availability of these financial supports are triangulated with INES indicators on corresponding system-level policies, covering both compulsory and non-compulsory PD (EAG 2014).

In addition, INES collected data on the actors responsible for circulating information about PD activities, which can be an important condition for its accessibility (EAG 2014), and the School Resources Review complements INES data on teachers' PD requirements with an indicator on teachers' *entitlements*. These entitlements can be an important guarantor of access in systems without mandated PD engagement and in contexts where teachers' might otherwise receive less training than they need.

4.2.2. Data limitations and gaps

Available OECD data will allow for the empirical analysis of teachers' engagement in professional learning activities and any differences across schools and groups of teachers that may be indicative of inequities in access. Yet, system-level data on teachers' financial support for PD has not been collected since 2013 (for EAG 2014). In addition, there is limited information on the policies and regulations that might explain variations in access at the system and school level. This includes, for example, information on whether part-time and temporary teachers enjoy the same entitlements, requirements and supports for professional learning as their full-time counterparts, or inequities that may arise from the funding mechanisms used to support PD in schools.

Compared to the barriers that limit teachers' access to learning opportunities, there has been more limited coverage of the difficulties that individual schools may face when trying to provide their teachers with a rich array of high-quality learning opportunities. Exceptions are TALIS 2013, which asked principals whether their effectiveness was limited by the lack of support for teachers' professional development, and the School Resources Review which collected information on system-wide programmes and resources supporting team work within schools and cross-school collaboration. Beyond this, there is little information on school-level barriers to access and the kinds of decisions (e.g. related to the management of staff time) that moderate them.

System-level frameworks for the funding of professional development are another area with limited internationally comparable information. EAG 2018 includes indicators on the level of administration that takes decisions on the allocation and use of resources for PD in schools. Yet, more information is needed on the extent to which schools are responsible for funding or providing PD, as well as the mechanism through which these funds are distributed (the School Resources Review has collected some information on earmarked PD funding among participating countries). There is also no comparable information on the level or proportion of funding that school systems invest in teachers' continuing professional learning.

Finally, although online professional platforms and digital learning contents play an increasingly important role in widening access to tailored professional development opportunities, information on their availability and use remains limited.

4.3. Provision: How and by whom is CPL provided? (Dimension 3)

Table 4.4. OECD instruments covering Dimension 3 (Provision)

Source	Level of analysis			Total
	System	School	Teacher	
TALIS 2013	8	8	26	42
TALIS 2018	9	8	27	44
PISA 2015	5	6	11	22
PISA 2018	9	5	14	28
INES	3	2	2	7
SRR	9	5	0	14
Total	43	34	80	

Sources: see Annex B.

4.3.1. Coverage

The OECD's teacher surveys offer a considerable amount of information on the various formats in which teachers are provided with or engage in professional learning. This includes their participation in centrally-provided courses, workshops and seminars, but also learning opportunities provided by peers and external experts in their school (e.g. through structured peer observation, collaborative learning, mentoring or coaching arrangements). Teachers' responses to TALIS 2013 also provide some indication of their PD activities' mode of delivery, beyond its general format, including the number of days the PD activities lasted. Teachers were also asked whether the activities involved a group of colleagues, whether they included active learning components and whether the activities covered an extended time-period (TALIS 2013 and 2018).

Although system-level indicators related to this dimension have been relatively few in number, INES collected valuable information on the landscape of PD providers in 2013 (for EAG 2014). It indicates whether professional learning activities in a given system are provided by higher education institutions, ITE institutions, schools, dedicated agencies, local authorities, private companies and teachers' professional organisations or unions. In addition, both TALIS and EAG have included a question on the availability of mentoring systems and teachers' requirements to serve as mentors, which offers some information on the role of teachers in providing professional learning opportunities for their peers.

Internationally comparable information on system-level policies and resources that support school-based learning provisions remains limited. The School Resources Review has collected data on the central support of teacher collaboration across schools (e.g. through programmes, regulations, the deployment of trainers or funding) in participating countries. It also collected information on the existence of networks for teacher development that support collaborative learning formats and whether there is central support for teamwork and collaboration within schools. This information is complemented by TALIS survey items investigating principals' support for co-operation among teachers in their school.

4.3.2. Data limitations and gaps

Although OECD indicators offer some comparative data on PD providers in OECD countries, it was last collected in 2013 and includes no information on the types of training that different providers offer, their relative market share or the competitive dynamics between them. Another area with scant information is the process by which different forms

of provision, including school-based and teacher-led learning activities, are officially recognised (e.g. as counting towards teachers' required PD hours). This includes the actors responsible for taking these decisions and the criteria employed in the process. There is equally little international information on the policies governing the professional development market, including the processes and responsibilities for accrediting PD programmes and the rules of engagement for third-party and private providers.

In light of new evidence on effective professional learning practices, many systems have sought to re-orient their provision and incorporate more active learning elements, to ensure that learning experiences are sustained in duration and embedded in practical contexts. Nevertheless, comparative information on the timing, duration and pedagogical methods employed in teachers' learning activities remains limited. (The time spent on individual PD activities was covered in TALIS 2013, but not 2018).

Another central topic in the provision of professional learning opportunities that has been insufficiently covered by the OECD's data collections is the supply and qualification of teacher educators (e.g. whether they need to be licensed/accredited to be recognised as providers of compulsory or formal PD). These questions are relevant as countries seek to ensure sufficient capacity for the provision of relevant learning opportunities while guaranteeing the quality of teacher training.

4.4. Content: How are CPL contents selected and developed? (Dimension 4)

Table 4.5. OECD instruments covering Dimension 4 (Content)

Source	Level of analysis			Total
	System	School	Teacher	
TALIS 2013	1	6	35	42
TALIS 2018	1	5	37	43
PISA 2015	0	3	21	24
PISA 2018	0	2	44	46
INES	7	8	4	19
SRR	0	0	0	0
Total	9	24	141	

Sources: see Annex B.

4.4.1. Coverage

OECD survey data and indicators cover a range of important aspects included in the TPL study's analytical Dimension 4 (Content), particularly at the level of the teacher and – to a lesser extent – that of the school. Both TALIS and PISA elicited detailed responses from teachers, describing the types of contents (and subject fields) covered by their professional development activities. This includes whether any of their training was focused on content knowledge, subject-specific pedagogical competences, or one of a series of general pedagogical topics (such as the use of ICT or student assessment practices). In addition, PISA provides an insight into the proportions of teachers' learning dedicated to their subject (the respective survey's focus domain), to the pedagogy of their subject and to general pedagogical knowledge.

The same teachers were asked whether they were in need of additional training in any of the areas above, thus providing some measure of unmet learning needs, insofar as they are identified by teachers. While these unmet needs are not necessarily indicative of a

misalignment between learning contents and teachers' needs, OECD surveys also asked teachers explicitly whether a lack of relevant PD constituted a barrier to their participation (TALIS) and whether their principals were aware of their needs (PISA 2014).

Furthermore, OECD surveys addressed the alignment of PD contents by asking principals whether they ensure that teachers' learning activities are in accordance with their school's teaching goals (PISA 2015) and whether they develop training plans for the school and individual teachers (TALIS). Both of these activities are likely to have some bearing on the selection and alignment of teachers' learning contents.

OECD system-level data collected through the INES programme casts some light on the process by which teachers select or are assigned the contents of their professional learning. Indicators specify, for example, which actors are responsible for deciding, proposing and validating compulsory and non-compulsory PD activities for individual teachers. In addition, they describe whether the contents of teachers' compulsory PD are defined by or aligned with central standards (both of these indicators were last updated in 2013 for EAG 2014).

4.4.2. Data limitations and gaps

While OECD data collections provide relatively exhaustive information on individual teachers' learning contents, their coverage is limited when it comes to the system-level processes by which teachers', schools' and system-wide learning needs are identified or forecast and translated into corresponding developmental activities. There is no information, for example, on the actors involved in the development of professional learning contents (including the mechanisms by which effective teaching practices and knowledge that emerge from teachers' professional experience are identified, codified and spread). Similarly, no data has been collected on the existence of system-wide processes to identify teachers' learning needs and/or development needs (e.g. through surveys or the consultation of professional bodies).

While there is some data on principals' efforts to align PD with identified needs at the school level, there is no internationally comparable information on whether and how central regulations steer CPL contents in order to align them with the curriculum, the system's educational priorities, professional standards or initial teacher education.

Finally, while the OECD's teacher surveys provide an insight into the perceived relevance and effectiveness of professional learning activities, they provide less information on the support teachers receive in transferring learning contents to their classrooms and applying them in practice.

4.5. Quality: How is the quality of CPL ensured? (Dimension 5)

Table 4.6. OECD instruments covering Dimension 5 (Quality)

	Level of analysis			
Source	System	School	Teacher	Total
TALIS 2013	0	5	21	26
TALIS 2018	1	4	14	19
PISA 2015	0	2	1	3
PISA 2018	0	0	0	0
INES	5	7	4	16
SRR	0	0	0	0
Total	6	18	40	

Sources: see Annex B.

4.5.1. Coverage

The OECD's large-scale surveys provide some indication of the quality of professional learning based on teachers' own estimation and items that could serve as proxies for quality. In TALIS 2018, for example, teachers were asked whether their professional development activities overall have had a positive impact on their practice during the last year, as well as the characteristics and topics covered by the professional learning activities that they considered most impactful. Other items track the extent to which professional learning is planned within the context of wider school improvement strategies. Some more indirect information on the perceived quality of professional learning or adequacy of provision may be gleaned from the importance teachers attach to increasing spending on high-quality PD (TALIS 2018).

System-level information is relatively sparse when it comes to the quality of teachers' professional learning and the central policies and resources intended to support it. Yet, in 2013 and 2014, the OECD's INES programme collected data on some system-level indicators, mostly mirroring the school-level practices investigated in TALIS. This includes whether central policies mandate compulsory and non-compulsory PD to be planned in the context of school development priorities (EAG 2014) and the extent to which professional learning is integrated into teachers' appraisal process, either as an outcome or as the subject of evaluations (EAG 2015). INES also collected data on the actors responsible for setting standards for PD activities (EAG 2014).

4.5.2. Data limitations and gaps

The internationally comparable data related to the TPL study's analytical Dimension 5 (Quality) is subject to significant limitations. While surveys elicit teachers' direct and indirect perspectives on the effectiveness of their PD activities, previous OECD data collections have included little information on system-wide quality assurance mechanisms for PD. This includes how countries define objectives and quality standards for CPL, how they measure and evaluate its effectiveness, and which measures they take to improve its provision as a consequence.

As far as accountability structures around the quality of PD are concerned, the focus has primarily been on the teacher, rather than the school or the system as a whole. While INES data covers the appraisal of teachers' engagement in professional learning at the individual level, for example, there is no systematic information on the role of PD in school inspection

frameworks and on whether schools are held to account for providing teachers with high-quality learning opportunities. Likewise, there is no systematic information on the role that accreditation processes or funding mechanisms may play in evaluating and ensuring the quality of PD providers or programmes.

The limited available data on quality assurance has also primarily focused on centrally-provided PD. It will therefore be important to obtain further information on the way in which teachers can self-evaluate and monitor the quality of their autonomous learning practices, for example though guidelines or standards. The INES programme collected data on the actors that set standards for continuing professional learning, but it is not clear how these standards are used, how binding they are and whether they relate to the quality or merely the content covered by the teachers' PD. It would also be important to know whether and how national guidelines, standards or goals for high-quality PD are adapted to apply to different providers, different formats (incl. collaborative or online learning) and learning contexts (e.g. different levels of education or teachers' career stages).

5. Methodology of the TPL Study

The methodology of the TPL study is designed to explore countries' challenges and strengths, provide them with timely advice and opportunities for peer learning based on a strengths, weaknesses, opportunities and threats (SWOT) policy diagnosis approach that has been tested and refined during the ITP study (2016-2018). The sections below describe the different ways in which countries can engage in the TPL study and provide a detailed description of its main components, methodology and timeline.

5.1. Modes of participation

5.1.1. Three levels of participation

Participation in the TPL study is open to all OECD member countries, invitees and observers to the Education Policy Committee, as well as other partner countries. Countries can choose between three levels of participation:

- **Attendance of project meetings**: Contribution to peer learning and policy exchange during the annual project meetings.

- **Country background report (CBR)**: Preparation of a CBR by the concerned country, which will feed into the comparative analysis and peer learning.

- **Country diagnosis**: Organisation of a country diagnostic visit by the OECD Secretariat, which provides an external diagnosis to the concerned country.

Participation in a country diagnosis requires the preparation of a CBR. Countries preparing a CBR or engaging in a country diagnosis appoint a national co-ordinator to oversee their participation in the study. The national co-ordinator is encouraged to attend the annual project meetings, which guide the methods, timing and principles of the project. Participation in the project meetings is optional and countries are free to send other or additional representatives if they wish.

5.1.2. Two thematic strands for country-specific work

The TPL study is comprised of two thematic strands covering the full cycle of teachers' professional learning. Strand I covers initial teacher preparation (ITP), building on the framework analysis developed in the the OECD ITP study conducted in 2016-2018 (see 0).

Strand II covers continuing professional learning (CPL) as conceptualised in this framework paper. Participating countries can choose to engage in a country diagnosis of one of the two strands, or both.

This section outlines the methodology for countries participating in only one of the strands. Country diagnoses that combine Strand I and II would require an adapted methodology that accounts for their greater scope. They would likely require the preparation of a more extensive country background report, adjustments to the length of the diagnostic visits, a broader selection of stakeholders, as well as the commitment of additional resources. The process, methodology and costs for combined diagnoses will be defined in close collaboration with interested countries.

5.2. Main components of the study

5.2.1. Identification of key policy issues and questions for analysis

The first phase of the TPL study serves to develop the analytical framework for country diagnoses and identify key policy issues and questions to guide the analysis. This document constitutes the first step of this preparatory work and presents a selection of policy issues for discussion, drawing on a targeted literature review and synthesis of quantitative and qualitative evidence on CPL. It also proposes an analytical framework for the analysis of teachers' continuing professional learning systems.

The TPL study's launch event on 27-28 June 2019 gave countries the opportunity to comment on the proposed analytical framework and discuss key policy issues and questions for analysis. The study's design and implementation plan was revised based on this feedback and will guide the OECD Secretariat's analyses and help it in identifying the information it needs to collect from participating countries prior to diagnostic visits.

5.2.2. Country background reports

All countries engaging in a country diagnosis will complete a country background report (CBR) following the study's conceptual framework and detailed guidelines. The CBR is designed to assist the expert team to understand the national context prior to the diagnostic visit and to target their questions accordingly. The CBRs' common framework will also facilitate comparative analyses and create opportunities for countries to learn from each other. The CBR should include contextual information on the education system in general and teachers' ITP/CPL in particular. It should also include information on relevant recent reforms, innovations, concerns and challenges. Guidelines for the completion of the CBR have been published on the project website (http://www.oecd.org/education/teachers-professional-learning-study), following delegates' review and comments.

5.2.3. Country diagnostic visits

The Secretariat works with national co-ordinators of participating countries to establish an itinerary for a diagnostic visit. The OECD visit team is comprised of two members of the OECD Secretariat and two international experts selected based on their expertise in one or more of the TPL study's thematic areas. In addition, national co-ordinators of other participating countries can participate in the country visit as observers if the host country agrees. A critical friend within the OECD Secretariat may provide general policy insights and feedback on preparatory documentation.

The country visits will span a period of four days and a fifth day reserved for the presentation of initial findings (see below). During the visit, the OECD visit team will conduct site visits and interview a wide range of stakeholders based on protocols covering

each of the study's key areas. Relevant stakeholders may include, among others, officials in national ministries, officials in municipalities/states/boards of education, new teachers, experienced teachers, mentor teachers, second-career teachers, school boards, school leaders, researchers in teacher training institutions, trainers and teacher educators, as well as teacher unions.

The information collected during the visit will inform a diagnosis of the system's key strengths, weaknesses, opportunities and threats (SWOT diagnosis) related to teachers' continuing professional learning.

5.2.4. Workshop / webinar on initial findings

Following the visit, the OECD team presents the initial findings of the SWOT policy diagnosis and facilitates an informal discussion of its results. Countries can choose to host the discussion of initial findings in the form of a workshop or a webinar:

- **Workshops** would take place on Day 5 of the OECD team visit.
- **Webinars** would take place in the week following the OECD team visit.

Shortly after the event, the OECD visit team adjusts its initial findings in light of the discussions and submit the draft (in bullet point format) to national co-ordinators. The OECD visit team then develops a more detailed diagnosis of the country's professional learning system, which is included in the country's national diagnostic report (see below).

5.2.5. National diagnostic reports

Within two months following a country visit, the SWOT diagnoses and analysis resulting from the visits are compiled into national diagnostic reports of about 30-50 pages that allow countries to see all information pertaining to their TPL systems at a glance and easily share them.

Table 5.1 provides an indicative timeline for a country's participation in Strand II of the TPL study.

Table 5.1. Indicative timeline for the participation in a TPL country diagnosis (Strand II)

Time from the agreed start date	Output/process stage
Months 1-3	Preparation of the CBR (can be adjusted in line with country needs)
Month 3	Revisions to the CBR and country visit preparation
Month 4	Country visit (5 days)
At the end of the diagnostic visit	Workshop / webinar on initial findings
Month 6	National diagnostic reports shared with country (and potentially on interactive platform)

5.2.6. Synthesis phase and final comparative report

In 2022, if at least five countries have joined the project, the OECD Secretariat will prepare a comparative report and convene a webinar or conference to present and discuss the study's findings. The final report will focus on Strand II of the study, covering teachers' continuing professional learning and thereby complement the ITP study's final report on initial teacher preparation (OECD, 2019[6]). The comparative report will describe common challenges in designing and sustaining systems for teachers' continuing professional learning and present promising strategies to address them, based on international evidence

and practices identified in the study. The report will serve as a resource for policy makers, teacher educators, educational leaders, teachers and the research community.

5.2.7. Project meetings

The TPL study was launched at an international meeting on 27-28 June 2019 at the OECD premises in Paris. In addition, the OECD Secretariat convenes annual project meetings to facilitate peer exchange and allow countries to share their lessons and experiences related to teachers' professional learning. The meetings also serve to guide the methods, timing and principles of the project and to provide feedback on its comparative outputs. Participation in the project meetings is open to all OECD member countries and observers to the Education Policy Committee (EDPC) and – subject to the EDPC's permission – to other interested countries as well as to the Trade Union Advisory Committee to the OECD (TUAC) and the Business and Industry Advisory Committee to the OECD (BIAC).

For each project meeting, the OECD Secretariat proposes a set of substantive policy issues related to the project's initial teacher preparation strand or the continuing professional learning strand for discussion. Participants are invited to present their countries' experience of the issue, related challenges and policy initiatives.

5.3. Provisional timeline for the study:

The following provisional timeline for the TPL study is based on a scenario in which at least five countries participate in the study.

June 2019 – May 2020

- The Secretariat convenes the launch meeting of the Teachers' Professional Learning (TPL) study (27-28 June 2019).

- The Secretariat refines the analytical framework and CBR guidelines based on the feedback received at the launch meeting.

- The first set of countries confirm their participation.

June 2020 – May 2021

- The Secretariat convenes a second project meeting (23 June 2020).

- Countries prepare CBRs.

- The Secretariat schedules country visits in consultation with countries.

- OECD visit teams conduct a first round ofcountry visits and deliver their findings.

- Results of country visits (SWOT diagnoses and case studies) and Country Background Reports are disseminated.

- Additional countries confirm their participation.

June 2021 – December 2022

- The Secretariat organises annual project meetings to facilitate peer exchange and review the study's progress.

- The Secretariat conducts a second round of country visits.

- The Secretariat prepares and publishes a final comparative report.

- The Secretariat convenes a launch event or webinar.

5.4. Outputs

The TPL study will produce a number of outputs:

- An analytical framework for the analysis of CPL systems;

- Country background reports providing information on ITP/CPL systems;

- Workshops or webinars with national co-ordinators and ministry officials to present and discuss the country visits' initial findings;

- National diagnostic reports presenting case studies and the results of the TPL study's SWOT diagnoses;

- Annual project meetings to facilitate peer exchange and to review the study's progress;

- A dedicated project website presenting key information on the TPL study and the results from both the ITP strand and the CPL strand (http://www.oecd.org/education/teachers-professional-learning-study);

- Depending on the participation of at least five countries with a Country Background Report or a country diagnosis, a final comparative report that will draw out key lessons for policy makers to improve their CPL systems.

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Annex A. Background – Building on the Initial Teacher Preparation (ITP) study and other OECD work

The OECD Teachers' Professional Learning (TPL) study builds on the OECD Initial Teacher Preparation (ITP) study (2016-2018) and expands its scope beyond the first years of teaching to include teachers' continuing professional learning (CPL). The results of the ITP study are documented on the *Teacher Ready!* platform (www.oecdteacherready.org) and in the report *A Flying Start: Improving Initial Teacher Preparation Systems* (OECD, 2019[6]). This document proposes a conceptual framework and methodology for the analysis of teachers' continuing professional learning systems. It thus builds on the Teacher Education Pathway model (Roberts-Hull, Jensen and Cooper, 2015[127]), which formed the conceptual framework of the ITP study (Figure A.1) and expands it to include in-service education beyond the first years of teaching.

Figure A.1. Conceptual framework of the ITP study
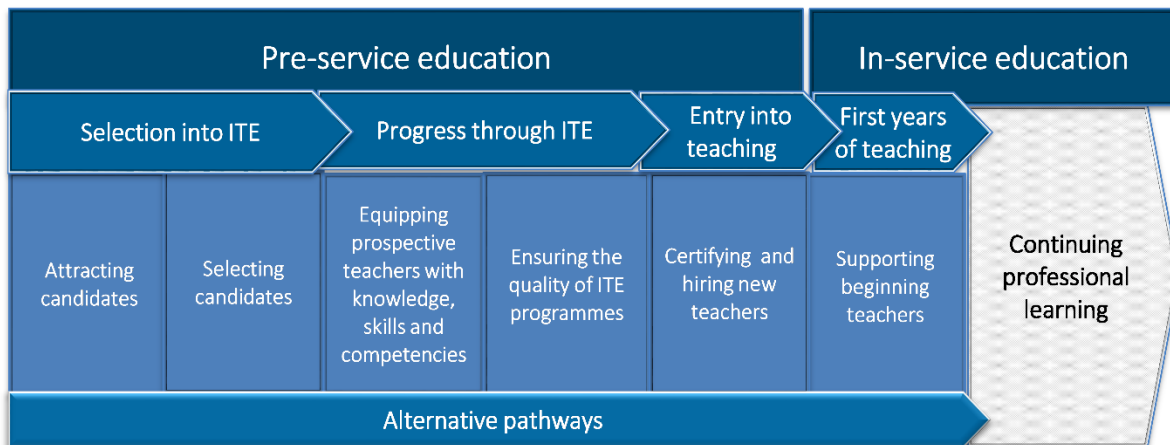
Sources: OECD (2019[6]), *A Flying Start: Improving Initial Teacher Preparation Systems*, OECD Publishing, Paris, https://doi.org/10.1787/cf74e549-en, adapted from Roberts-Hull, K., B. Jensen and S. Cooper (2015), *A New Approach: Reforming teacher education*, Learning First, Australia.

In addition to the ITP study, the Teachers' Professional Learning (TPL) study complements and build on a broad range of projects and evidence generated within the Directorate for Education and Skills and elsewhere in the OECD.

The TPL study draws on INES/NESLI system-level indicators related to teacher's professional learning reported in recent volumes of ***Education at a Glance***. The internationally comparative data covers aspects related to requirements and incentives for teachers' participation in professional development (EAG 2014, 2015, 2016, 2018), its role in appraisal frameworks (EAG 2015), PD providers (EAG 2014), the governance of PD contents and the process for determining the activities undertaken by individual teachers (EAG 2014), as well as the funding of PD (EAG 2014, 2018) (OECD, 2014[64]; OECD, 2016[108]; OECD, 2018[33]; OECD, 2015[38]).

The OECD's **2018 Teaching and Learning International Survey (TALIS)** provides vital quantitative data on teachers' experience engaging in PD, which the TPL study draws on for secondary analyses. Volume I of TALIS 2018 covered teachers' initial education, induction, and continuing professional learning. It includes questions on the content, format, quantity and perceived effectiveness of teachers' professional development, their educational needs, as well as barriers and supports for their participation (OECD, 2019[3]). The TPL study also complements the development of the **TALIS Video Study** report on teacher practices and the Global Teaching InSights digital initiative, which seeks to make quality teaching practices from around the world visible through video.

Results from **PISA 2018** provide additional evidence on the policies and practices associated with students' educational achievement and equity, including school-level practices around teachers' professional development (OECD, 2019[128]). The TPL study also adds to the discussion of effective PD practices in PISA's previous thematic work on teacher policies in high-performing school systems (OECD, 2018[129]).

The TPL study also builds on the Directorate's in-depth thematic research on policies related to teachers and teaching. These includes *Teachers Matter: Attracting, Developing and Retaining Effective Teachers* (OECD, 2005[109]) and the **OECD School Resources Review's** comparative report on human resources (OECD, 2019[31]), which analyses policies to support the development of school professionals within the context of resource trade-offs. It also complements work conducted by the OECD on **Schools as Learning Organisations (SLOs)**.

The TPL study benefits from and feed into the **Education 2030** project, which is working to develop a teaching framework to build a common understanding of the knowledge, skills, attitudes and values that teachers will need to prepare their students for the world of the future.

In light of the OECD's wider work on teachers, the main added value of the TPL study is to systematically analyse system-level policy environments related to ITP and CPL. The study combines country-specific diagnoses and international comparative research to identify policies that can systematically promote the success of teachers' professional learning. In addition, the study provides opportunities for countries to engage in peer learning based on common strengths and challenges.

Annex B. OECD indicators and survey items related to teachers' continuing professional learning

Table B.1. TALIS 2013 survey items related to teachers' professional learning

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	2	3	4	5	System	School	Teacher
Principal questionnaire									
TC2G06A	Principals receive school administration or principal training programme / course prior to appointment		2		4			x	x
TC2G06C	Principals receive instructional leadership training / course prior to appointment		2		4			x	x
TC2G20B	Principals develop a professional development plan for their school				4	5		x	
TC2G21C	Principals support co-operation among teachers to develop new teaching practices			3				x	
TC2G21D	Principals ensure teachers take responsibility for improving their teaching skills	1						x	x
TC2G26G	Lack of opportunities and support for teachers' professional development		2	3				x	
TC2G29B	Principals develop development or training plans for each teacher following appraisal	1			4	5		x	
TC2G29D	Mentors are appointed to help teachers improve their teaching after appraisal	1		3		5		x	x
TC2G36	Teachers have access to a mentoring system		2	3				x	x
Teacher questionnaire									
TT2G14(A-M)4	Subject fields covered in teachers' in-service training or professional development				4				x
TT2G20A	Teachers have an assigned mentor		2	3					x
TT2G20B	Teachers serve as assigned mentors for others			3					x
TT2G21A1-A2	Participation in courses and workshops (and no. of days)		2	3			x		x
TT2G21B1-B2	Participation in education conferences or seminars (and no. of days)		2	3			x		x
TT2G21C1-C2	Participation in observation visits to other schools (and no. of days)		2	3			x	x	x
TT2G21D1-D2	Participation in observation visits to businesses, public organisations, NGOs (and no. of days)		2	3			x		x
TT2G21E1-E2	Participation in in-service training courses in businesses, public organisations, NGOs (and no. of days)		2	3			x		x
TT2G21F	Participation in a qualification programme		2	3			x		x
TT2G21G	Participation in a PD network of teachers		2	3			x		x
TT2G21H	Participation in individual or collaborative research		2	3					x
TT2G21I	Participation in mentoring, peer observation and or coaching as part of formal school arrangement		2	3				x	x
TT2G22A1	PD covered knowledge and understanding of teacher's subject field(s)				4				x
TT2G22B1	PD covered pedagogical competences in teacher's subject field(s)				4				x
TT2G22C1	PD covered knowledge of the curriculum				4				x
TT2G22D1	PD covered student evaluation and assessment practices				4				x
TT2G22E1	PD covered ICT skills for teaching				4				x
TT2G22F1	PD covered student behaviour and classroom management				4				x

Question No.	Topic	Dimension(s) 1 2 3 4 5	Level(s) of analysis System School Teacher
TT2G22G1	PD covered school management and administration	4	x
TT2G22H1	PD covered approaches to individualised learning	4	x
TT2G22I1	PD covered teaching students with special needs	4	x
TT2G22J1	PD covered teaching in a multicultural or multilingual setting	4	x
TT2G22K1	PD covered teaching cross-curricular skills	4	x
TT2G22L1	PD covered developing cross-occupational competencies	4	x
TT2G22M1	PD covered new technologies in the workplace	4	x
TT2G22N1	PD covered student career guidance and counselling	4	x
TT2G22A2	Impact of PD covering knowledge and understanding of teacher's subject field(s)	5	x
TT2G22B2	Impact of PD covering pedagogical competences in teacher's subject field(s)	5	x
TT2G22C2	Impact of PD covering knowledge of the curriculum	5	x
TT2G22D2	Impact of PD covering student evaluation and assessment practices	5	x
TT2G22E2	Impact of PD covering ICT skills for teaching	5	x
TT2G22F2	Impact of PD covering student behaviour and classroom management	5	x
TT2G22G2	Impact of PD covering school management and administration	5	x
TT2G22H2	Impact of PD covering approaches to individualised learning	5	x
TT2G22I2	Impact of PD covering teaching students with special needs	5	x
TT2G22J2	Impact of PD covering teaching in a multicultural or multilingual setting	5	x
TT2G22K2	Impact of PD covering teaching cross-curricular skills	5	x
TT2G22L2	Impact of PD covering developing cross-occupational competencies	5	x
TT2G22M2	Impact of PD covering new technologies in the workplace	5	x
TT2G22N2	Impact of PD covering student career guidance and counselling	5	x
TT2G23	Teachers pay for their PD (covering none, some or all costs)	2	? ? x
TT2G24A	Teachers receive scheduled time for PD during working hours	1 2	? ? x
TT2G24B	Teachers receive a salary supplement for PD outside working hours	1 2	? ? x
TT2G24C	Teachers receive non-monetary support for PD activities outside working hours (reduced teaching, days off, study leave, etc.)	1 2	? ? x
TT2G25A	PD activities included group of colleagues from the school/subject	3 5	x
TT2G25B	PD activities included active learning	3 5	x
TT2G25C	PD activities included collaborative learning or research with other teachers	3 5	x
TT2G25D	PD covered an extended time-period	3 5	x
TT2G26A2	Need for PD covering knowledge and understanding of teacher's subject field(s)	4	x
TT2G26B2	Need for PD covering pedagogical competences in teacher's subject field(s)	4	x
TT2G26C2	Need for PD covering knowledge of the curriculum	4	x
TT2G26D2	Need for PD covering student evaluation and assessment practices	4	x
TT2G26E2	Need for PD covering ICT skills for teaching	4	x
TT2G26F2	Need for PD covering student behaviour and classroom management	4	x
TT2G26G2	Need for PD covering school management and administration	4	x
TT2G26H2	Need for PD covering approaches to individualised learning	4	x
TT2G26I2	Need for PD covering teaching students with special needs	4	x
TT2G26J2	Need for PD covering teaching in a multicultural or multilingual	4	x

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	2	3	4	5	System	School	Teacher
	setting								
TT2G26K2	Need for PD covering teaching cross-curricular skills				4				x
TT2G26L2	Need for PD covering developing cross-occupational competencies				4				x
TT2G26M2	Need for PD covering new technologies in the workplace				4				x
TT2G26N2	Need for PD covering student career guidance and counselling				4				x
TT2G27A	Barriers to participate (lack of pre-requisites)		2				x		x
TT2G27B	Barriers to participate (too expensive/unaffordable)		2				x		x
TT2G27C	Barriers to participate (lack of employer support)		2					x	x
TT2G27D	Barriers to participate (conflicts with work schedule)		2					x	x
TT2G27E	Barriers to participate (family responsibilities)		2						x
TT2G27F	Barriers to participate (no relevant PD on offer)			3	4		x	x	x
TT2G27G	Barriers to participate (no incentives to take part)	1					x	x	x
TT2G31D	Development or training plans are established for teachers in the school	1			4	5		x	x
TT2G31G	Measures to remedy weaknesses in teaching are discussed w/ teachers in the school	1				5		x	x
TT2G31H	Mentors are appointed to help teachers improve in the school			3				x	x
TT2G33B	Frequency of observing other teachers' classes and providing feedback			3					x
TT2G33F	Frequency of working with other teachers to ensure common standards for assessing student progress			3					x
TT2G33H	Frequency of participating in collaborative professional learning			3					x
TT2G49B	Teachers have been abroad for professional purposes (language learning)			3	4				x
TT2G49C	Teachers have been abroad for professional purposes (learning of other subject areas)			3	4				x
TT2G49E	Teachers have been abroad for professional purposes (establishing contact with schools abroad)			3					x
TT2G49F	Teachers have been abroad for professional purposes (teaching)			3					x

Sources: OECD (2014[125]), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264196261-en; TALIS 2013 Teacher Questionnaire (http://www.oecd.org/education/school/TALIS-2013-Teacher-questionnaire.pdf); TALIS 2013 Principal Questionnaire (http://www.oecd.org/education/school/TALIS-2013-Principal-questionnaire.pdf) (all accessed on 19 October 2020).

Table B.2. TALIS 2018 survey items related to teachers' professional learning

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	2	3	4	5	System	School	Teacher
Principal questionnaire									
tc3g06a	Principals receive school administration or principal training programme / course prior to appointment		2		4			x	x
tc3g06c	Principals receive instructional leadership training / course prior to appointment		2		4			x	x
tc3g22k	Principals develop a professional development plan for their school				4	5		x	

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	**2**	**3**	**4**	**5**	**System**	**School**	**Teacher**
tc3g22d	Principals support co-operation among teachers to develop new teaching practices			3				x	
tc3g22e	Principals ensure teachers take responsibility for improving their teaching skills	1						x	x
tc3g08e	Principals need PD in designing professional development for/with teachers					5		x	
tc3g25b	Principals develop development or training plans for each teacher following appraisal	1			4	5		x	
tc3g25d	Mentors are appointed to help teachers improve their teaching after appraisal	1		3		5		x	x
tc3g34	Teachers have access to a mentoring system		2	3				x	x
Teacher questionnaire									
tt3g18g	Time teachers spent on PD activities last week		2							x
tt3g21a	Teachers have an assigned mentor as part of a formal arrangement			3				x	x
tt3g21b	Teachers serve as assigned mentors for others as part of a formal arrangement			3				x	x
tt3g22a	Participation in courses and workshops attended in person		2	3			x		x
tt3g22b	Participation in online courses/seminars		2	3			x		x
tt3g22c	Participation in education conferences		2	3			x		x
tt3g22d	Participation in formal qualification programme		2	3			x		x
tt3g22e	Participation in observation visits to other schools		2	3			x	x	x
tt3g22f	Participation in observation visits to business premises, public organisations, non-governmental organisations		2	3			x		x
tt3g22g	Participation in formal peer/self-observation and coaching as part of a formal school arrangement		2	3				x	x
tt3g22h	Participation in a PD network of teachers		2	3			x		x
tt3g22i	Participation in reading professional literature			3					x
tt3g23a	PD covered knowledge and understanding of teacher's subject field(s)				4				x
tt3g23b	PD covered pedagogical competences in teacher's subject field(s)				4				x
tt3g23c	PD covered knowledge of the curriculum				4				x
tt3g23d	PD covered student assessment practices				4				x
tt3g23e	PD covered ICT skills for teaching				4				x
tt3g23f	PD covered student behaviour and classroom management				4				x
tt3g23g	PD covered school management and administration				4				x
tt3g23h	PD covered approaches to individualised learning				4				x
tt3g23i	PD covered teaching students with special needs				4				x
tt3g23j	PD covered teaching in a multicultural or multilingual setting				4				x
tt3g23k	PD covered teaching cross-curricular skills				4				x
tt3g23l	PD covered analysis and use of student assessments				4				x
tt3g23m	PD covered teacher-parent/guardian co-operation				4				x
tt3g23n	PD covered communicating with people from different cultures or countries				4				x
tt3g24a	Teachers receive release from teaching duties for PD during regular working hours		2				?	?	x
tt3g24b	Teachers receive non-monetary support for PD activities outside working hours		2				?	?	x
tt3g24c	Teachers receive reimbursement or payment of costs for PD		2				?	?	x

Question No.	Topic	Dimension(s) 1 2 3 4 5	Level(s) of analysis System	School	Teacher
tt3g24d	Teachers receive materials needed for PD activities	2	?	?	x
tt3g24e	Teachers receive monetary supplements for PD activities outside working hours	1 2	?	?	x
tt3g24f	Teachers receive non-monetary rewards for PD activities (e.g. classroom resources/materials, book vouchers, software/apps)	1 2	?	?	x
tt3g24g	Teachers receive non-monetary professional benefits for PD activities	1 2	?	?	x
tt3g24h	Teachers receive increased salary for PD activities	1 2	?	?	x
tt3g25	PD activities had a positive impact on teachers' practice during last 12 months	5			x
tt3g26a	Impactful PD built on prior knowledge	4 5			x
tt3g26b	Impactful PD adapted to personal development needs	4 5			x
tt3g26c	Impactful PD had a coherent structure	5			x
tt3g26d	Impactful PD focused on content needed to teach my subjects	4 5			x
tt3g26e	Impactful PD provided opportunities for active learning	3 5			x
tt3g26f	Impactful PD provided opportunities for collaborative learning	3 5			x
tt3g26g	Impactful PD provided opportunities to practise/apply new ideas and knowledge in my own classroom	3 5			x
tt3g26h	Impactful PD provided follow-up activities	5			x
tt3g26i	Impactful PD took place at the school	3 5			x
tt3g26j	Impactful PD involved most colleagues of the school	3 5			x
tt3g26k	Impactful PD took place over an extended period of time	3 5			x
tt3g26l	Impactful PD focused on innovation in my teaching	4 5			x
tt3g27a	Need for PD covering knowledge and understanding of teacher's subject field(s)	4			x
tt3g27b	Need for PD covering pedagogical competences in teacher's subject field(s)	4			x
tt3g27c	Need for PD covering knowledge of the curriculum	4			x
tt3g27d	Need for PD covering student assessment practices	4			x
tt3g27d	Need for PD covering ICT skills for teaching	4			x
tt3g27f	Need for PD covering student behaviour and classroom management	4			x
tt3g27g	Need for PD covering school management and administration	4			x
tt3g27h	Need for PD covering approaches to individualised learning	4			x
tt3g27i	Need for PD covering teaching students with special needs	4			x
tt3g27j	Need for PD covering teaching in a multicultural or multilingual setting	4			x
tt3g27k	Need for PD covering teaching cross-curricular skills	4			x
tt3g27l	Need for PD covering analysis and use of student assessments?	4			x
tt3g27m	Need for PD covering teacher-parent/guardian co-operation	4			x
tt3g27n	Need for PD covering communicating with people from different cultures or countries	4			x
tt3g28a	Barriers to participate (lack of pre-requisites)	2	x		x
tt3g28b	Barriers to participate (too expensive/unaffordable)	2	x		x
tt3g28c	Barriers to participate (lack of employer support)	2		x	x
tt3g28d	Barriers to participate (conflicts with work schedule)	2		x	x
tt3g28e	Barriers to participate (family responsibilities)	2			x
tt3g28f	Barriers to participate (no relevant PD on offer)	3 4	x	x	x
tt3g28g	Barriers to participate (no incentives to take part)	1	x	x	x

Question No.	Topic	Dimension(s) 1	2	3	4	5	System	School	Teacher
tt3g33b	Frequency of observing other teachers' classes and providing feedback			3					x
tt3g33f	Frequency of working with other teachers to ensure common standards for assessing student progress			3					x
tt3g33h	Frequency of participating in collaborative professional learning			3					x
tt3g55g	Perceived importance of spending more on high-quality PD for teachers			3		5	x		
tt3g57b	Teacher has been abroad for professional purposes (language learning)			3	4				x
tt3g57c	Teacher has been abroad for professional purposes (learning of other subject areas)			3	4				x
tt3g57e	Teacher has been abroad for professional purposes (establishing contact with schools abroad)			3					x
tt3g57f	Teacher has been abroad for professional purposes (teaching)			3					x

Sources: OECD (2019[3]), *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*, OECD Publishing, Paris, https://dx.doi.org/10.1787/1d0bc92a-en; TALIS 2018 Teacher Questionnaire (http://www.oecd.org/education/school/TALIS-2018-MS-Teacher-Questionnaire-ENG.pdf); TALIS 2018 Principal Questionnaire (http://www.oecd.org/education/school/TALIS-2018-MS-Principal-Questionnaire-ENG.pdf) (all accessed on 19 October 2020).

Table B.3. PISA 2015 survey items related to teachers' professional learning

Question No.	Topic	Dimension(s) 1	2	3	4	5	System	School	Teacher
School questionnaire									
SC009Q02TA	Principals ensure that teachers' PD activities are aligned with the school's teaching goals				4	5		x	x
SC009Q10TA	Principals engage teachers to help build a school culture of continuous improvement	1						x	x
SC037Q08TA	Teacher mentoring (based on policy or on school's initiative)			3			x	x	x
SC025Q01NA	% of teaching staff that attended a formal PD programme		2	3			x		x
SC027Q01NA	Teachers in the school co-operate by exchanging ideas or materials		2	3				x	
SC027Q02NA	Schools invite specialists to conduct in-service training for teachers		2	3			x	x	
SC027Q03NA	Schools organise in-service workshops dealing with school-specific issues		2	3				x	
SC027Q04NA	Schools organise in-service workshops for specific groups of teachers		2	3				x	
SC040Q12NA	Schools implemented measures in the area of teacher PD based on last internal school evaluation	1				5		x	
General and science teacher questionnaires (optional)									
TC020Q01NA	Participation in a qualification programme		2	3			x		x
TC020Q02NA	Participation in a PD network of teachers		2	3			x		x
TC020Q03NA	Participation in individual or collaborative research		2	3					x
TC020Q04NA	Participation in mentoring, peer observation or coaching as part of a formal school arrangement		2	3				x	x

Question No.	Topic	Dimension(s) 1 2 3 4 5	Level(s) of analysis System	School	Teacher
TC020Q05NA	Participation in reading professional literature	3			x
TC020Q06NA	Participation in informal dialogue with colleagues on how to improve teaching	3			x
TC046Q08NA	Frequency of engaging in collaborative professional learning	3			x
TC046Q02NA	Frequency of observing other teachers' classes and providing feedback	3			x
TC046Q06NA	Frequency of working with other teachers to ensure common standards for assessing student progress	3			x
TC021Q01NA	Requirement to engage in PD activities (Yes/No)	1			x
TC030Q01NA	% of PD dedicated to <Broad science> and technology content matter	4			x
TC030Q02NA	% of PD dedicated to pedagogy of <school science>	4			x
TC030Q03NA	% of PD dedicated to general pedagogical knowledge	4			x
TC045Q01N	PD covered knowledge and understanding of teacher's subject field(s)	4			x
TC045Q02N	PD covered pedagogical competences in teacher's subject field(s)	4			x
TC045Q03N	PD covered knowledge of the curriculum	4			x
TC045Q04N	PD covered student assessment practices	4			x
TC045Q05N	PD covered ICT skills for teaching	4			x
TC045Q06N	PD covered student behaviour and classroom management	4			x
TC045Q07N	PD covered school management and administration	4			x
TC045Q08N	PD covered approaches to individualised learning	4			x
TC045Q09N	PD covered teaching students with special needs	4			x
TC045Q10N	PD covered teaching in a multicultural or multilingual setting	4			x
TC045Q11N	PD covered teaching cross-curricular skills	4			x
TC045Q12N	PD covered student career guidance and counselling	4			x
TC045Q13N	PD covered internal evaluation or self-evaluation of schools	4			x
TC045Q14N	PD covered use of evaluation results	4			x
TC045Q15N	PD covered teacher-parent co-operation	4			x
TC175Q01HA	Time teachers spend reading for work outside of classes	2			x
TC060Q04NA	Teachers report that the principal is aware of their needs	4		x	x
TC060Q06NA	Teachers report that the principal inspires new ideas for their professional learning	1 4		x	x

Sources: PISA 2015 School Questionnaire (http://www.oecd.org/pisa/data/CY6_QST_MS_SCQ_CBA_Final.pdf); PISA 2015 Teacher Questionnaires (http://www.oecd.org/pisa/data/CY6_QST_MS_TCQ_Final.pdf) (all accessed on 19 October 2020).

Table B.4. PISA 2018 survey items related to teachers' professional learning

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	2	3	4	5	System	School	Teacher
School questionnaire									
SC025Q01NA	% of teaching staff that attended a formal PD programme		2	3			x	x	x
SC037Q08TA	Teacher mentoring (based on policy or on school's initiative)			3			x	x	x
SC155Q08HA	Resources for teachers to learn how to use digital devices		2		4			x	
SC156Q08HA	Schools schedule time for teachers to meet and work on pedagogical uses of digital devices		2	3	4			x	
General and test language teacher questionnaires (optional)									
TC020Q01NA	Participation in a qualification programme		2	3			x		x
TC020Q02NA	Participation in a PD network of teachers		2	3			x		x
TC020Q03NA	Participation in individual or collaborative research		2	3					x
TC020Q04NA	Participation in mentoring, peer observation or coaching as part of a formal school arrangement		2	3				x	x
TC020Q05NA	Participation in reading professional literature			3					x
TC020Q06NA	Participation in informal dialogue with colleagues on how to improve teaching			3					x
TC021Q01NA	Requirements for teachers to engage in PD (Yes/No)	1							x
TC045Q01N	PD covered knowledge and understanding of my subject field(s)				4				x
TC045Q02N	PD covered pedagogical competences in teacher's subject field(s)				4				x
TC045Q03N	PD covered knowledge of the curriculum				4				x
TC045Q04N	PD covered student assessment practices				4				x
TC045Q05N	PD covered ICT skills for teaching				4				x
TC045Q06N	PD covered student behaviour and classroom management				4				x
TC045Q07N	PD covered school management and administration (skills)				4				x
TC045Q08N	PD covered approaches to individualised learning				4				x
TC045Q09N	PD covered teaching students with special needs				4				x
TC045Q10N	PD covered teaching in a multicultural or multilingual setting				4				x
TC045Q11N	PD covered teaching cross-curricular skills				4				x
TC045Q12N	PD covered student career guidance and counselling				4				x
TC045Q13N	PD covered internal evaluation or self-evaluation of schools				4				x
TC045Q14N	PD covered the use of evaluation results				4				x
TC045Q15N	PD covered teacher-parent co-operation				4				x
TC045Q16N	PD covered second language teaching				4				x
TC045Q17N	PD covered communicating with people from different cultures or countries				4				x
TC045Q18N	PD covered teaching about equity and diversity				4				x
TC046Q06NA	Frequency of working with other teachers to ensure common standards for assessing student progress			3					x
TC175Q01HA	Time spent reading for work (out of classes)		2						x
TC185Q01HA	Need for PD covering knowledge and understanding of teacher's subject field(s)				4				x
TC185Q02HA	Need for PD covering pedagogical competences in teacher's subject field(s)				4				x
TC185Q03HA	Need for PD covering knowledge of the curriculum				4				x
TC185Q04HA	Need for PD covering student assessment practices				4				x

Question No.	Topic	Dimension(s)					Level(s) of analysis		
		1	2	3	4	5	System	School	Teacher
TC185Q05HA	Need for PD covering ICT skills for teaching				4				x
TC185Q06HA	Need for PD covering student behaviour and classroom management				4				x
TC185Q07HA	Need for PD covering school management and administration				4				x
TC185Q08HA	Need for PD covering approaches to individualised learning				4				x
TC185Q09HA	Need for PD covering teaching students with special needs				4				x
TC185Q10HA	Need for PD covering teaching in a multicultural or multilingual setting				4				x
TC185Q11HA	Need for PD covering teaching cross-curricular skills				4				x
TC185Q12HA	Need for PD covering student career guidance and counselling				4				x
TC185Q13HA	Need for PD covering internal evaluation or self-evaluation of schools				4				x
TC185Q14HA	Need for PD covering use of evaluation results				4				x
TC185Q15HA	Need for PD covering teacher-parent co-operation				4				x
TC185Q16HA	Need for PD covering second language teaching				4				x
TC185Q17HA	Need for PD covering communicating with people from different cultures or countries				4				x
TC185Q18HA	Need for PD covering teaching about equity and diversity				4				x
TC193Q01HA	Participation in courses and workshops		2	3			x		x
TC193Q02HA	Participation in education conferences or seminars		2	3			x		x
TC193Q03HA	Participation in observation visits to other schools		2	3			x	x	x
TC193Q04HA	Participation in observation visits to businesses, public organisations, NGOs		2	3			x		x
TC193Q05HA	Participation in in-service training courses in businesses, public organisations, NGOs		2	3			x		x
TC204Q01HA	% of PD dedicated to <reading literacy> domain				4				x
TC204Q02HA	% of PD dedicated to pedagogy of <reading literacy>				4				x
TC204Q03HA	% of PD dedicated to general pedagogical knowledge				4				x
TC206Q01HA	Teachers received training on intercultural communication				4				x
TC206Q02HA	Teachers received training on conflict resolution strategies				4				x
TC206Q03HA	Teachers received training on confronting discrimination				4				x
TC206Q04HA	Teachers studied culturally-responsive teaching approaches and techniques				4				x
TC206Q05HA	Teachers received training on teaching in multicultural classrooms				4				x

Table B.5. OECD School Resources Review questionnaire items related to teachers' professional learning

Table No.	Topic	Dimension(s) 1 2 3 4 5	Level(s) of analysis System School Teacher
Report: The Funding of School Resources			
3.A1.1. / 3.A1.2	Funding mechanisms used to distribute earmarked resources for PD	2	x x
Report: Working and Learning Together			
2.1	PD as a requirement for career stage advancement (Yes/No)	1	x
4.3 and A.5 (web)	Requirements to engage in PD (incl. amount)	1	x · · x
4.3 and A.5 (web)	Entitlements for PD participation (incl. amount)	2	x · · x
4.3 and A.5 (web)	Incentives for PD participation (e.g. financial incentives or career advancement)	1	x · · x
4.4	Providers of professional development activities	3	x x
4.5 and A.5 (web)	System-wide support for team work within schools (Requirements for school plans)	1 · 3	x x
4.5 and A.5 (web)	System-wide support for team work within schools (Policies or programmes)	2 3	x x
4.5 and A.5 (web)	System-wide support for team work within schools (Dedicated resources)	2 3	x x
4.5 and A.5 (web)	System-wide support for team work within schools (Structures or roles)	3	x x
4.6 and A.5 (web)	System-wide support for collaboration across schools (Central facilitation)	2 3	x
4.6 and A.5 (web)	System-wide support for collaboration across schools (Policy, programme or funding)	2 3	x
4.6 and A.5 (web)	System-wide support for collaboration across schools (Online platforms)	2 3	x
4.6 and A.5 (web)	System-wide support for collaboration across schools (Teacher union or association)	2 3	x
4.7 and A.6 (web)	Training requirements for school leaders (pre-appointment)	1	x

Notes: Data limited to countries and economies participating in the OECD School Resources Review (http://www.oecd.org/education/school-resources-review/); External professional development refers to any formalised professional learning activities. In different country contexts, these may refer to single-session courses, academic-term long classes or a defined set of ongoing learning activities occurring within a primary or secondary school setting; Teacher team work within schools refers to allocated resources (e.g., structures, scheduled time, programmes) allowing teachers to work together on curricular, pedagogical, cultural or administrative tasks; Networks for teacher collaboration beyond the school include resources and structures that provide support to teachers and allow them to share knowledge (e.g. on curricular and pedagogical issues). It includes programmes, associations, and digital platforms.
Sources: OECD (2017[84]), *The Funding of School Education: Connecting Resources and Learning*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264276147-en; OECD (2019[31]), *Working and Learning Together: Rethinking Human Resource Policies for Schools*, OECD Publishing, Paris, https://doi.org/10.1787/b7aaf050-en.

Table B.6. INES indicators related to teachers' professional learning

EAG issue and table	Topic	1	2	3	4	5	System	School	Teacher
2014 D7.1 (a-d)	Requirements for teachers' engagement in PD	1					x		
2014 D7.1 (a-d)	Who decides/proposes/validates COMPULSORY PD activities undertaken by individual teachers?	1			4		x	x	x
2014 D7.3 (a-d)	Who decides/proposes/validates NON-COMPULSORY PD activities undertaken by individual teachers?	1			4		x	x	x
2014 D7.1 (a-d)	Compulsory PD fin. support: Costs subsidised or shared by the government		2				x	x	x
2014 D7.1 (a-d)	Compulsory PD fin. support: Participation cost covered		2				x	x	x
2014 D7.1 (a-d)	Compulsory PD fin. support: Paid teachers' leave of absence		2				x	x	x
2014 D7.1 (a-d)	Compulsory PD fin. support: Cost of substitute teachers covered		2				x	x	
2014 D7.1 (a-d)	Compulsory PD fin. support: Separate school budget allocated		2				x	x	
2014 D7.2 (a-d)	Requirements for PD planning				4	5	x	x	x
2014 D7.2 (a-d)	Compulsory PD planned in the context of school development priorities				4	5		x	
2014 D7.2 (a-d)	(Central) specification of required contents for compulsory PD				4		x		
2014 D7.2 (a-d)	Who sets standards/content areas of compulsory PD activities?				4	5	x	x	
2014 D7.3 (a-d)	Non-compulsory PD fin. support: Costs subsidised or shared by the government	1	2				x	x	x
2014 D7.3 (a-d)	Non-compulsory PD fin. support: Participation cost covered	1	2				x	x	x
2014 D7.3 (a-d)	Non-compulsory PD fin. support: Paid teachers' leave of absence	1	2				x	x	x
2014 D7.3 (a-d)	Non-compulsory PD fin. support: Cost of substitute teachers covered		2				x	x	
2014 D7.3 (a-d)	Non-compulsory PD fin. support: Separate school budget allocated		2				x	x	
2014 D7.3 (a-d)	Non-compulsory PD planned in the context of school development priorities				4	5		x	
2014 D7.4 (a-d)	Providers of professional development activities			3			x	x	
2014 D7.4 (a-d)	Circulation of information about PD activities		2		4		x	x	
2014 D7.4 (a-d)	Percentage of teachers participating in PD per year		2						x
2014 D7.4 (a-d)	Average number of days per year for those who participated		2						x
2014 D7.3 (a-d)	PD activities (tasks and no. of hours) required as part of total working time and/or working time at school	1					x	x	x
2015 D3.7 (a-d) 2016 D3.7	Completed PD affects teachers' base salaries (or additional payments)	1					x	x	x
2018 D3.7 2019 D3.7	Completed PD [with success] affects teachers' base salaries (or additional payments)	1					x	x	x
2015 D3.8 (a-d) 2016 D3.8	Who decides if completed PD affects teachers' base salaries (or additional payments)	1					x	x	
2018 D3.8 2019 D3.8	Who decides if completed PD [with success] affects teachers' base salaries (or additional payments)	1					x	x	
2015 D3.8 (a-d)	Who decides how completed PD affects teachers' base salaries (or additional payments) [1]	1					x	x	
2015 D3.8 (a-d)	Who decides how completed PD affects teachers' base salaries (or additional payments) [2]	1					x	x	
2015 D7.4 (a-c)	PD is covered by teachers' appraisal frameworks	1				5	x	x	x
2015 D7.5 (a-c)	Appraisal informs teachers' PD	1			4	5	x	x	x
2015 D7.5 (a-c)	Positive appraisal can lead to extra PD as reward	1	2				x	x	x
2015 D7.5 (a-c)	Negative teacher appraisal can lead to compulsory training	1				5	x	x	x
2015 D7.6	PD completion influence on career progression	1					x		x
2015 D7.6	PD completion influence on salaries	1					x		x

EAG issue and table	Topic	Dimension(s)					Level(s) of analysis		
		1	**2**	**3**	**4**	**5**	System	School	Teacher
2016 D3.7 2018 D3.7 2019 D3.7	Mentoring/induction for new teachers affects teachers' base salaries (or additional payments)	1					x	x	x
2016 D3.8 2018 D3.8 2019 D3.8	Who decides if mentoring/induction of new teachers affects teachers' base salaries (or additional payments)	1					x	x	
2016 D4.3 2017 D4.3 2018 D4.3	Requirements for teachers to help in mentoring/induction for new teachers	1		3			x	x	x
2018 D4.3	Requirements for teachers to participate in PD	1					x	x	
2018 D6.8	Decisions on allocation of resources for PD to schools		2				x	x	
2018 D6.8	Decisions on use of resources for PD in schools		2				x	x	

Note: Indicators of relevance to multiple dimensions of the TPL framework are listed repeatedly.

Sources: OECD (2014[64]), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2014-en; OECD (2015[38]), *Education at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2015-en; OECD (2016[108]), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2016-en; OECD (2017[130]), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en; OECD (2018[33]), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2018-en; OECD (2019[131]), *Education at a Glance 2019: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/f8d7880d-en.