Chapter 3

Teacher professionalism and knowledge in qualifications frameworks and professional standards

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This chapter explores how teachers' professionalism and teachers' knowledge are manifested through instruments such as qualifications frameworks and professional standards. National systems employ these documents as a reference to guide teachers on what they should know and be able to do. Firstly, we begin by exploring how qualifications frameworks and standards define and shape teachers' professional competences. We use the metaphor of a "knowledge wall" to explain how the two frameworks relate to each other. Secondly, we analyse the internal structure and the content of five professional standards in Australia, England and Scotland (United Kingdom), the standards developed by the National Board of Professional Teaching Standards (United States) and Ontario (Canada). In particular we examine how different types of knowledge components are described and which elements of pedagogical knowledge are specified.

Introduction

Defining the knowledge-base of a profession can be a shared challenge across professions. In today's global context, societies are becoming increasingly knowledge intensive, and knowledge has become the key connecting elements across multiple levels and dimensions of contemporary governance (OECD, 2013a). In this new scheme, multiple sources of knowledge will interact and contribute to the continuous generation of new knowledge. This leads to two challenges: the first is defining the knowledge base of a specific community of practice, and the second is defining how to make this knowledge meaningful and readily available from one context to another (Evetts, 2005; Fazekas and Burns, 2011). Succeeding the first challenge will help establish policies that foster the generation of the specific knowledge needed. Succeeding the second challenge will help strengthen the capacity of that knowledge to adapt to different contexts and needs, and become synergic with other types of knowledge.

In this chapter, we explore how teachers' professionalism and teachers' knowledge are manifested through certain instruments that help connect and mediate between education policies, professional bodies, and practitioners. Teachers' qualifications frameworks and professional standards provide a basic reference of how countries guide teachers and education systems on what teachers should know and be able to do to clarify their role in a knowledge-based profession. A key question raised relative to teachers' knowledge is how education systems translate the available scientific evidence about what constitutes a good teacher so that she can have an impact on student learning in the classroom. A shared understanding of what constitutes a good teacher is important in order to align the necessary resources at the classroom, school, and system levels that teachers will need in order to better impact student learning and to influence the profession in substantive ways (e.g. by offering competitive salaries or attractive career paths) (Ingvarson and Rowe, 2007). Qualification frameworks and professional standards help signal what is expected from teachers and how they can improve at different stages of their professional careers.

This analysis focuses mainly on professional standards for teachers in Australia, the United Kingdom (England and Scotland), Canada (Ontario) and the United States, and a few other international examples. The analytical work carried out is grounded in desk-based research, using documents available to the general public from official websites, as well as existent research on the topic. In recent years, the OECD has developed several publications and carried out various studies focusing on teachers specifically, or as components of policies for better learning, such as Teachers Matter (OECD, 2005a), the Teaching and Learning International Survey (TALIS)[1], Improving Schools[2], Equity and Quality in Education (OECD, 2012b), and Synergies for Better Learning (OECD, 2013b), among others. This review will build upon previous OECD work, as well as non-OECD sources from government, academia and international institutions.

Part I discusses how teachers' professionalism is reflected through a system of documents. It will look at how qualifications frameworks and professional standards define and shape teachers' professional competences. Part II focuses on teachers' professional

standards through an analysis of their general characteristics, and in particular, their internal structure and content. This part also discusses the knowledge components that professional standards promote as required by the professional in order to be successful during practice.

Teachers' frameworks, standards and the "knowledge wall"

Teachers face increasingly complex demands along their professional lives due to factors such as an increased focus on learning outcomes; a more diversified student population (e.g. immigrant or special needs); increasing external demands from parents, employers, media, advocacy groups, and other stakeholders; evolving cross-curricular content and new uses of technology, among others (OECD, 2005a; OECD, 2013b). Teachers' professional standards and competence frameworks are viewed by some as tools that can help teachers cope with these new challenges. Along with qualifications frameworks, they provide a window into how countries describe the knowledge required of teachers and how they plan improvement for the profession. There is nevertheless a debate regarding what these frameworks are and the effects they might have on improving teaching and learning. In order to understand how teachers' professionalism is manifested in these instruments, this section will introduce some key concepts and discuss the purpose and different possible uses of standards and qualifications frameworks.

Sociological literature on "professionalism" is vast and includes varying conceptions and definitions of profession, professionalism, and professionalisation (e.g. Evetts, 2009, 2012; Snoek et al, 2011; Brante, 2010; Hargreaves, 2000; Eraut, 1994). It is not the purpose of this chapter to review these conceptualisations, nor to take a stand on one definition over another. Rather we embrace each view and adopt a general and broad approach so as to be able to capture any characteristics, manifestations, or attributes of professionalism that might be reflected in the standards documents we have chosen to analyse. In this paper, therefore, we use the concept of professionalism based on Snoek et al (2011) as a term encompassing the qualifications and lifelong professional learning expected of teachers, including the use of professional standards; professional autonomy; the central values and ethical codes within the profession; the knowledge base and the expectations towards teachers in connection with their professional expertise; collaborations within and outside the profession; and accountability for professional quality. When speaking about the teaching "profession", we refer to the occupational group of teachers.

Literature about teachers typically refers to different kinds of "frameworks" such as competence frameworks, knowledge frameworks, qualifications frameworks and so forth. In addition to the variety of frameworks, the meaning of some related key concepts can also differ (e.g. qualifications, skills, competences, or competencies), despite existing international coordination efforts, such as the Common European Principles for Teacher Competences and Qualifications, the European Qualifications Framework or the European Higher Education Area (Brockmann, Clarke and Winch, 2008; FIER, 2009; Bourgonje and Tromp, 2011). As Allais (2010) highlights, the definition of qualifications frameworks "…are not empirically derived, but describe what people hope qualifications frameworks *should be* and *should do*. […] the terminology used in creating and describing qualifications frameworks is very similar in different countries—including terms such as "learning outcomes', "competence", "standards", "validation", and even, "qualification"—in fact, these terms often refer to very different things."

Qualifications frameworks

Qualifications frameworks can help clarify the specific formal qualifications that a teacher (or another occupation or profession) can receive within a specific education system in relation to other professions. They can thus be regarded as documents (among others) in which teachers' professionalism is manifested. A "qualification" is defined by the OECD (2007b; 2010) as the formal outcome (or award) of an accreditation or validation process that certifies that an individual has learned the knowledge, skills, and/or wider competences according to specific standards. Qualifications frameworks are considered mainly "outcome-based" (and in some contexts, "standards-based"), since they provide information about the learning outcomes against which learners' performance can be assessed in a process. For the purpose of this chapter, qualifications frameworks will therefore be defined as instruments that support the development and classification of qualifications according to a set of criteria for levels of learning achieved, and based on specific quality requirements. These instruments can allow, among others, a common understanding of the quality and content or outcome of an award achieved, comparability among qualifications and a certain transferability of knowledge across professions.

Despite their various forms and functions, qualifications frameworks have four basic or generic aims according to Coles and Werquin (2009):

1. establishing national standards (here, understood as common references) of knowledge, skills, and wider competences
2. promoting quality of education and training provision through regulation
3. coordinating and comparing qualifications by relating them to each other
4. promoting access to learning, transfer of learning and progression in learning.

Qualifications frameworks can vary depending on who they are developed by (centrally, by an agency, or by stakeholders), their main objective (prescriptive or communicative of main guidelines), or how detailed they are (covering all qualifications, or only some in the system) (OECD, 2007; Tuck, 2007). Countries do not necessarily define qualifications for teachers at the national level: several OECD countries have only broad descriptions of initial teacher education at the national or sub-national level, with more detailed descriptions at local levels. Qualifications frameworks can also be supra-national (across countries, also known as "meta-frameworks") such as the European Qualifications Framework (EQF), the Framework of Qualifications for the European Higher Education Area (EHEA), or the efforts to map qualifications frameworks across APEC economies (EU, 2015; Burke et al., 2009). The aim of these frameworks is often to link countries' qualifications systems in a region.

To function adequately, qualifications frameworks need occupational standards (mainly for vocational education and training, where these are also known as "unit standards"), or other measures of learning or information systems that clarify qualifications, pathways, providers, and expected performance (Coles, 2006; ILO, 2006). Providing a "competence-based" (sometimes equivalent to "outcome-based") approach to establish the outcomes and levels of the stages of study is sometimes difficult to achieve within one occupation, or to compare between different occupations. As a result, many national qualification frameworks sometimes include input measures in order to compare qualifications (e.g. number of years of study or number of hours of instruction) (Coles, 2006; OECD, 2010). Still, a challenge seems to persist in avoiding too narrow or vague definitions of what "outcome-based" means, or outcomes that are based on mistaken understandings of the nature of knowledge

and skills (Allais, 2010). Let us now have a look at what exactly professional standards and competence frameworks are, before discussing the details about how they connect to qualifications.

Professional standards and competence frameworks

Professional standards carry the challenge of providing a clear definition for the term "competence". In fact, the lack of a generally-accepted operational definition of competence is usually acknowledged (Kouwenhoven, 2009). The term "competency" is used in literature, either as a synonym of competence (e.g. OECD, 2001) or as a separate concept (Teodorescu, 2006). In the same way, the term "skills" is understood in different ways across literature. Ananiadou and Claro (2009) acknowledge that this term is sometimes used as the equivalent of competence or as a distinct term in itself. Within the OECD, a "skill" is understood in a broad and complex sense and is used as a synonym for competence (OECD, 2013c).

In the context of this chapter, "competences" are defined as the on-going and progressive ability to meet complex demands in a defined context by mobilising holistic psychosocial resources (cognitive, functional, personal and ethical) as needed to accomplish these demands. This definition of competence as a dynamic, process-oriented concept is key to the analysis of professional standards. "Competencies", on the other hand, are defined as components of this competence encompassing knowledge, understanding, skills, abilities and attitudes (thus also composed of multiple psychosocial resources) (based on Rychen and Salganik, 2003; OECD, 2005b).

The term "standard" is likewise used in a variety of ways across policy documents and research studies (Sachs, 2003). The literature often refers to the double definition of the word as both a "flag" and a "measure" in a broad sense. Ingvarson (2002) translates the first sense as articulating "core educational values that teachers seek to make manifest in their practice", that is, "standards, by definition, are statements about what is valued". Standards as measuring tools describe "what teachers need to know and be able to do to put these values into practice" but also "how attainment of that knowledge will be assessed". In this sense, therefore, a standard refers to "the level of performance on the criterion being assessed" (Ingvarson, 2002: 3). Qualifications frameworks sometimes understand "standards-based" as equivalent to "outcome-based" in the sense that they provide information on the expected learning outcomes or on the process of verifying learning outcomes through quality assurance procedures (OECD, 2007; Tuck, 2007; Coles, 2006).

In order to be able to analyse a variety of standards in this chapter, we use a broad understanding of standards based on Ingvarson's (2002) conception: standards describe what teachers should know and be able to do, including the description of a desirable level of performance. They are thus documents, or sets of documents, with different extensions and scope that state what is valued in a profession through a competence-based approach. We note that the term "competence framework" is also used, in some cases as equivalent to "professional standards", in other cases to refer to broader frameworks that can contain elements such as sets of general and professional duties for teachers, but also school improvement plans (OECD, 2013b). In this chapter we use the term "professional standards", since the documents we have chosen for analysis are referred to as standards.

Having discussed some key terms, we now turn to the connection between qualifications and standards frameworks and clarify what role competencies play.

The "knowledge wall": Linking qualifications frameworks and professional standards

How do qualifications and standards frameworks, separately and together, define and shape teachers' professionalism within an education system? It is not always clear how different types of frameworks relate to each other. For example, how do qualifications frameworks and professional standards frameworks interact with each other within an education system? What do competencies and standards mean for these frameworks and what is their role? Based on various OECD and non-OECD literature, this section will discuss how qualifications and standards frameworks interact within a country.

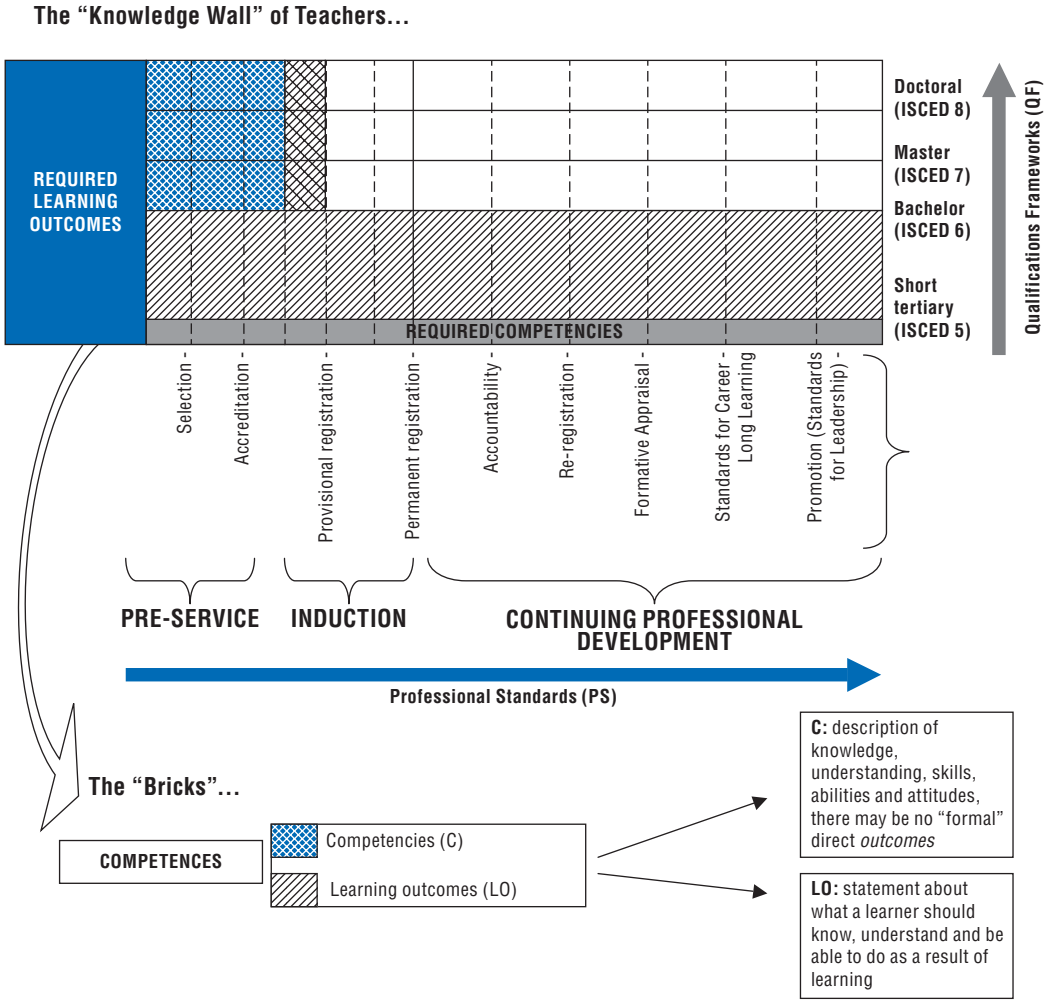
Along the continuum of a teacher's professional career, professional standards complement the qualifications acquired in formal teacher education programmes to promote teachers' lifelong improvement. As we have seen above, qualifications frameworks specify the formally-acquired knowledge in principle (e.g. bachelors, masters, or doctoral degree) (OECD, 2004). Professional standards, on the other hand, specify the on-going improvement of competencies (knowledge, skills and attitudes) from beginner to proficient that may eventually lead (or not) to additional formal outcomes in a teacher's career (e.g. practicum or induction requirements and continuing professional development). They may also allow the further shaping of teachers' knowledge at different stages of their careers according to the needs of the education system. From these different perspectives, both qualifications frameworks and professional standards contain information on the aspirations of education systems about what teachers' should know and be able to do.

We use the analogy of a teacher's "knowledge wall" to explain how these frameworks can influence a teacher's professional career. Figure 3.1 shows a possible interaction between a qualifications framework (vertical axis) and professional standards (horizontal axis) in a hypothetical country and illustrates a particular stage of development in a teacher's career. A teacher in this country has been awarded with an initial teacher education degree at the bachelor level, as represented on the vertical axis. This axis corresponds to the qualification framework. In this specific example, it shows the ISCED classification levels as well as the levels for the Framework for Qualifications of the European Higher Education Area (Bologna Working Group, 2005). In terms of professional standards represented on the horizontal axis, this teacher has demonstrated to have achieved the required standards for entering into a teacher education programme (e.g. the standards for Selection into the teacher education programme) and to become an accredited teacher (e.g. the standards for Accreditation), and could now be following a registration process. The competencies corresponding to the achieved standards are indicated in blue checkers, while the learning outcomes corresponding to the achieved qualifications are represented in dark stripes. Depending on the employer, the teacher could also be subject to a permanency appraisal, possibly during the first year of practice (Ingvarson, 2002). The competences are the "bricks" that show what elements of professional competency (e.g. knowledge, skills and attitudes) the teacher would have demonstrated to have acquired by having completed the given qualification and achieved the given standards.

The competences define the vertical and horizontal movement of a teacher in the knowledge wall. After completion of initial training, the progress in one framework may not necessarily imply progress in the other one. This will depend on a country's teacher policy and the personal ambitions of teachers. For example, in some countries a Master's degree is required to become a registered teacher, or a teacher can follow a doctoral programme by his/her ambition without necessarily advancing in the standards framework. From this

dynamic perspective of progressive improvement, standards, and qualifications frameworks can be an important influence in shaping the opportunities and incentives for teachers to follow informal, non-formal and formal continuous training.

Figure 3.1. **The "knowledge wall" of teachers' national qualifications and professional standards frameworks**



To summarise, we used the analogy of a "knowledge wall" to illustrate how teachers' professionalism is reflected in teacher frameworks as a progression of their professional competences, such as qualifications and standards frameworks, and how these together define and shape teachers' professional improvement. Teachers face increasing accountability and formative demands from education systems. Adequate, evidence-based training opportunities (non-formal, informal or formal) can help match these demands. However, challenges still remain for countries to: a) reach a common evidence-based understanding of key concepts related to these frameworks; and b) use this understanding to ensure adequate accountability and formative processes through a structure that provides a coherent view of professional knowledge required of teachers.

But how exactly do standards and qualifications frameworks help in shaping what knowledge is required of teachers? In the next section, we discuss how various frameworks conceptualise teachers' knowledge and improvement by analysing a selected set of frameworks of professional teaching standards. The purpose of the analysis is to describe how teachers' knowledge is manifested in professional standards and how this manifestation compares across countries.

An analysis of frameworks for teachers' professional standards

We begin by first analysing some general characteristics of the selected teacher standards. Then, we look at how specific elements of teachers' knowledge are contained in these professional standards. We focus only on general pedagogical knowledge, not content knowledge, nor pedagogical content knowledge. We use the term "general pedagogical knowledge" to refer to the specialised knowledge of teachers for creating effective teaching and learning environments for all students independent of subject matter. (For a detailed discussion of general pedagogical knowledge, see the chapter by Guerriero in this volume.)

The number of countries with professional standards has increased over the years. As with qualifications frameworks, the different contexts and uses that education systems give to professional standards seem to have a defining influence on how these are structured and used. Professional standards can have many structural differences, such as the text's extension and detail or how they describe objectives. For example, they can be organised as extensive lists of competences or as more generic statements. They can also be part of a framework with different possible balances between formative and summative functions (Ingvarson and Kleinhenz, 2003; FIER, 2009; OECD, 2013b). There is some evidence however that shows some convergence in the content of professional standards. Ingvarson and Kleinhenz (2003) identified that most sets of professional standards today share common structural features, such as their articulation at taxonomical levels of specificity.

As part of the development of professional standards' across an increasing number of countries, an important amount of literature has discussed their effects, but the research is not conclusive. Some report that professional standards for teachers can lead to better student outcomes and can help identify effective teaching practice when used for certification purposes (Darling-Hammond, 2000; Darling-Hammond *et al*, 2012; Kleinhenz and Ingvarson, 2007). At the same time, there is concern that professional standards may restrain teachers' practice or that their use may actually enlarge learning gaps between students if these are not accompanied with the necessary resources to help teachers in socially disadvantaged contexts (Muller, 2009; Caena, 2011). As pointed out by Guerriero in this volume, researchers have tried to conceptualise and measure teacher quality through proxies, such as whether teachers have certification, the qualifications they possess or their years of experience. However, in order that such proxies become effective indicators of teacher quality, they need to reflect the actual competences underlying teaching itself.

General characteristics of teachers' professional standards

The selected cases for analysis come from Australia, England and Scotland (the United Kingdom), the standards developed by the National Board of Professional Teaching Standards (NBPTS) (the United States) and Ontario (Canada). These cases were selected because their professional standards have different extensions (e.g. the NBPTS vs. Ontario), they seem widely used within their system (England, Scotland and Ontario), have served as examples for the development of professional teacher standards in other countries

(e.g. Ontario, the NBPTS, England), or have recently adopted or revised professional standards (Australia and Scotland in 2013; England, 2012; the NBPTS, yearly revisions). In all the selected cases in this analysis, other documents or instruments in addition to professional standards complement the framework (Table 3.1).

Table 3.1. **Main elements composing the professional standards selected for analysis**

Country	Name	Main components
Australia	Australian Professional Standards for Teachers (AITSL, 2013a, 2016)	Professional teaching standards supported by the Self-Appraisal Tool (SAT) and the Australian Charter for the Professional Learning of Teachers and School Leaders (for continuous professional development). The standards are accompanied by videos that illustrate the practice in real life and other supporting material provide information on the accountability requirements for teachers at different career stages (initial teacher education, registration, teacher performance and development, and certification).
Ontario (Canada)	Professional standards (OCT, 2013, 2006, n.d.)	Standards of practice, ethical standards and the professional learning framework (for continuous professional development). There is also a Member's Handbook, a Casebook Guide for Teacher Education, and Cases for Teacher Development: Preparing for the Classroom.
England (United Kingdom)	Teachers' Standards (DfE, 2013; GTCE, 2015)	Teachers' Standards are divided into two parts: 1) Teaching and 2) Personal and Professional Conduct. Guidance to accompany the Professional Standards for Qualified Teacher Status and Requirements for Initial Teacher Training completes the framework. Master teacher standard (for advanced teachers) has been discussed as a possibility.
Scotland (United Kingdom)	Professional standards for teachers (GTCS, 2012a, 2012b)	Standards for Registration (for provisional registration at the end of initial teacher education and full registration), the Standards for Career-Long Professional Learning, and the Standards for Leadership and Management (Middle Leadership and Headship). There is also a Code of Professionalism and Conduct.
United States[1]	National Board of Professional Teaching Standards (NBPTS, 2012a, b, 2013)	Twenty-five sets of standards organised according to the student's developmental (grade) level and the subject area of the teacher. Among the supporting documents is the Guide to the National Board Professional Standards' Certification. Other sets of standards are being developed to address the teacher career continuum.

1. The United States have only recently developed a set of national standards (the Council for the Accreditation of Educator Preparation), but several states have developed their own standards (e.g. California, Colorado, Illinois, New York, Texas, Virginia, Washington and Wisconsin). The *National Board of Professional Teaching Standards* is an NGO that has developed standards for certification as advanced teachers.

Previous research has identified some general desirable characteristics of professional standards to promote good teaching (CEPPE, 2013; Ingvarson, 2002; Ingvarson and Kleinhenz, 2003; Ingvarson and Rowe, 2007; OECD, 2013a). These general characteristics can be summarised along three aspects: a) coverage and purpose, b) internal structure, and c) quality assurance tools. We use these aspects to conduct our analysis of the selected cases.

Coverage and purpose

Coverage and purpose refer to how the professional standards in the framework establish pathways for professional learning. Standards frameworks should provide a common basis to organise the key elements of the teaching profession, such as initial teacher education, teacher registration, teacher's professional development, career advancement, and teacher appraisal. These elements should be aligned to signal a logical improvement process at teachers' different career stages (OECD, 2005a; CEPPE, 2013; Bourgonje and Tromp, 2011). In terms of coverage, standards can be:

- generic (same professional standards for all the profession's branches)
- specific (distinctions among the profession's branches, such as grade level or subject taught).

As for their purpose, they can be distinguished by career stages (e.g. registration, certification) and proficiency stages (e.g. beginner, intermediate, advanced) levels, such as:

- basic core (one set of competences for all career or proficiency stages)
- roadmap (distinction from most basic to most advanced career stages)
- semi-roadmap (covers some professional stages only: typically registration and continuous development).

Table 3.2 summarises the coverage, the purposes and the main features of the selected cases for analysis.

Table 3.2. **Coverage, purpose and features of the professional standards selected for analysis**

Country, Professional Standards	Coverage	Purposes
Australia Australian Professional Standards for Teachers	Generic	Roadmap
Ontario (Canada) Professional standards	Generic	Basic core
England (United Kingdom) Teachers' Standards	Generic	Basic core
Scotland (United Kingdom) Professional standards for teachers	Generic	Semi-roadmap
United States National Board of Professional Teaching Standards	Specific	Roadmap

The coverage and purpose of teachers' professional standards, as well as their links to qualifications frameworks, can vary across countries. Literature mentioned earlier points to the preference of producing standards frameworks that clarify how teachers will improve along their professional careers. Some of the cases analysed here follow this approach (predominantly generic professional standards). Other cases establish at least a common core of quality for all teachers, while guidance for improvement is addressed through other process-oriented tools composing the framework.

Support and quality assurance

Researchers encourage combining different types of instruments for support and quality assurance, since teachers perform complex tasks that require a variety of competences. Kleinhenz and Ingarson (2007) point out that a framework of professional standards should be defined with quality assurance tools in mind. For example, instruments could include classroom observations, interviews with the teacher, teacher self-appraisal, student performance data, and feedback from parents and students, as well as teacher portfolios containing samples of student work, recorded lessons, among others (OECD, 2013b). The adequate use of these instruments requires capacity-building for teachers, school principals and evaluators in order to clarify the objectives of the standards and how success in achieving these tasks should be assessed. Furthermore, the evidence requested from teachers should not entail additional heavy workloads for them. Rather, this should be a "natural harvest" of their daily work in the classroom (e.g. samples of student work or class recordings) (OECD, 2005a; Santiago and Benavides, 2009; OECD, 2013b).

The professional standards in the cases analysed seem to comply in principle with what the literature notes on the desirable ways of appraising teachers previously mentioned. All frameworks analysed request evidence of practice from a variety of sources that draw from the teaching context (e.g. portfolios, meetings with appraisers, samples of student work). This evidence is based on professional judgement and the goal is to produce evidence of teacher practice drawn from the "natural harvest" of teachers' work. Additionally, a variety of actors can appraise teachers besides the school principal, such as other personnel from the school's leadership structure, other teachers or external personnel.

A detailed analysis on how the selected professional standards compare with regards to their coverage, purpose and quality assurance tools is beyond the scope of this chapter. Here we provide a summary on how the selected frameworks compare in terms of their internal structure.

Internal structure

Before turning to how standards formulate the requirements for teachers' knowledge, it is important to first understand how these documents frame the discourse about teaching. According to the literature (Ingvarson and Rowe, 2007; Bourgonje and Tromp, 2011; Santiago and Benavides, 2009), good teaching standards should be grounded on clear guiding conceptions of what good teaching actually means; be valid and specify the evidence to be gathered about what teachers know and do in order to promote learning and ensure it is authentic; and finally, identify the levels of performance and criteria to ensure reliability. They should also explain how and in what areas teachers should improve with time, and providing opportunities for this. Regarding the internal structure of standards frameworks, we will shortly summarise what standards should be like on the basis of literature and what we found in the selected professional standards.

In terms of teacher improvement, standards should motivate teachers to perform as professionals, promoting the teacher's capacity of empathy and self-efficacy. Concerning "growth and development" standards should align competencies from a perspective of gradual improvement that can take place at different stages of a teacher's career. Moreover, literature suggests that they should include domain specific and broader life skills, cultural and socio-emotional competence, as well as values (Ingvarson and Rowe, 2007; Bourgonje and Tromp, 2011; Santiago and Benavides, 2009). In the standards analysed, there seems to be some consistency in what teachers are expected to know as they progress in their professional careers. In general, the more experienced the teacher, the more adaptable they are expected to be (Australian, Scottish and the NBPTS [e.g. Middle Childhood-Generalist] professional standards). The selected standards tackle professional development in a variety of ways, with the support of documents aligned to professional standards, which goes from providing main guidelines, to specifying examples of activities.

Professional standards should allow teachers to understand the complexity of competences expected from them (e.g. by pointing to large "chunks" of the teachers' work, rather than only describing one task). They should refer to broad competences/ complex sets of skills and avoid pointing at "micro-level" competencies or "personality traits", while at the same time paying attention to how personal and contextual factors (societal, school system, and school-level) are related to teachers' performance. (Ingvarson and Rowe, 2007; Bourgonje and Tromp, 2011; Santiago and Benavides, 2009). The statements of what a teacher should be able to do seem to require the use of complex resources that entail cognitive, personal, functional, or ethical competences. Most of these professional standards explain what the teacher should be able to do, and are supported by further developments of what these statements are (e.g. descriptors, illustrations of practice). Australian professional standards, for example, have developed a series of videos to illustrate how one or more professional standards or descriptors translate into real life practice (AITSL, 2013). The NBPTS professional standards, such as those for Middle Childhood Generalist (NBPTS, 2012a), also include broad explanations of how a specific statement applies to the classroom. Both the professional standards from Scotland and England contain lists of supporting bullet points that further elaborate the professional standards' scope, and are not intended to be considered individually, but as a group of statements that clarify further the complexity of the competence requested (Bourgonje and Tromp, 2011; GTCS, 2012a; 2012b) (Table 3.3).

Table 3.3. **Extract from Standards for Registration (Scotland)**

3.1.3 Employ a range of teaching strategies and resources to meet the needs and abilities of learners	
Professional Actions Student teachers:	**Professional Actions** Registered teachers:
• demonstrate that they can select creative and imaginative strategies for teaching and learning appropriate to learners as individuals, groups or classes; • demonstrate that they can select and use a wide variety of resources and teaching approaches, including digital technologies and outdoor learning opportunities; • demonstrate the ability to justify and evaluate professional practice, and take action to improve the impact on all learners.	• consistently select creative and imaginative strategies for teaching and learning appropriate to the interests and needs of all learners, as individuals, groups or classes; • skilfully deploy a wide variety of innovative resources and teaching approaches, including digital technologies and, where appropriate, actively seeking outdoor learning opportunities; • justify consistently and evaluate competently professional practice, and take action to improve the impact on all learners; • create opportunities for learning to be transformative in terms of challenging assumptions and expanding world views.

Source: GTCS (2012a), The Standards for Registration: Mandatory Requirements for Registration with the General Teaching Council for Scotland, GTCS.

Standards should furthermore stand as "context free" (or context transversal), which means that most teachers working in schools with different characteristics in the same education system should be able to follow them. Although by definition, standards prescribe what teachers should know and be able to do, they should at the same time allow for diversity and innovation instead of forcing teachers to follow a specific method, (Ingvarson and Rowe, 2007). All the professional standards analysed seem to allow diversity of practice in general. Some mention innovation expectations for teachers (although briefly), without specifying what is an innovation. This is a more interesting finding if we consider the TALIS 2008 survey results, where three-quarters of teachers reported that they would receive no recognition for being more innovative in their teaching (OECD, 2009). The Scottish professional standards request innovation as part of a continuing professional learning process, where Scottish teachers should "lead and collaborate with others to plan innovative curricular programmes" (GTCS, 2012a). In the Australian professional standards, innovation (understood in a broad sense) is encouraged indirectly from the highly accomplished level, where teachers are asked to "initiate" or "lead" strategies in different areas (AITSL, 2016). The Ontario and England professional standards do not explicitly address innovation in their content, but are in general broad enough to allow for diversity in practice.

Interactions/engagement with other actors, such as students or colleagues, is also an important component of professional teacher standards. For teachers, engagement with other actors refers to performing wider professional responsibilities or collaborative work with other teachers, parents, or school principals, as members of learning communities. The Australian Professional Standards for Teachers (AITSL, 2016), for example, encourage more experienced teachers to "lead" activities in different aspects of teacher practice, such as developing or evaluating the effectiveness of teaching programmes, or to extend the repertoire of teaching strategies. The English Teachers' Standards, encourage teachers to participate in professional learning activities.

Ethical practice is also raised as important in all the professional standards analysed. The professional standards for England (United Kingdom), Ontario (Canada) and Scotland (United Kingdom) have separate components or standards for ethics-related aspects, where ethics comprise values such as: social justice, national values, care, integrity, trust and respect, and professional commitment. The Australian Professional Standards for Teachers point to professional ethics and responsibilities as part of the teacher's engagement with other actors. The NBPTS professional standards do not explicitly mention ethics-related issues in the five core values, but these are discussed later in the document. For example, the Middle

Childhood Generalist teacher professional standards include a standard on professionalism, leadership, and advocacy.

To summarise, while the professional standards analysed have different structures, they show some similarities in their general characteristics. They all seem to handle professional growth and development in a systematic way: the more expert the teachers, the more adaptable they are expected to be across these frameworks. They expect professionals to have complex competencies intended to be used across different contexts, they encourage diversity in practice and, (at least vaguely) address innovation in teaching. The standards also illustrate the described broad competencies in various ways. Moreover, they all provide various tools for quality assurance. Here we examine the kinds of professional knowledge that these standards include.

The knowledge components of teachers' professional standards

Research has shown that teaching practice is related with the nature and depth of a teacher's understandings of what they are teaching and this is also reflected in student learning outcomes. There is evidence that teachers become more effective when they gain a better understanding of how students learn content (Ingvarson, 2002). Darling-Hammond (2000) cites strong evidence that a teacher's increased education coursework can improve student achievement more than subject matter knowledge alone. According to this evidence, when teachers have knowledge of how to teach the subject to various kinds of students, subject matter knowledge can bring greater benefits. (This is further covered in Chapter 4 by Guerriero, this volume.)

In an attempt to understand how teachers' knowledge is manifested in professional standards, we now look at the knowledge components that are detailed in the standards. "Professional knowledge" refers to the distinctive body of knowledge that defines a profession (Hargreaves, 1996; Hiebert, Gallimore and Stigler, 2002; Mehta and Teles, 2014). There are various typologies of professional knowledge (for more details about typologies, see Chapter 2 by Révai and Guerriero, this volume). In the following section, we explore:

1. how different types of knowledge components are described
2. specific elements of pedagogical knowledge.

Types of knowledge components

Two common types of knowledge components that professional standards identify as essential for the professional to be successful are:

1. Specific content knowledge (or declarative knowledge, *knowing that*) relates to the disciplinary or epistemic knowledge of the sciences, arts, humanities and social sciences that professionals acquire mainly through formal training at the beginning or throughout their careers (Rata, 2012). In Shulman's (1986, 1987) seminal work, content knowledge is defined as knowledge of subject matter and its organising structures.
2. Application knowledge (or practitioner knowledge, procedural knowledge, *knowing how*) relates to the knowledge that helps translate the specific content knowledge into the context of the profession. It is continuously gained and improved by experience or training in practice to address specific situations. It is therefore: a) linked with practice; b) detailed, concrete, and specific, and; c) integrated (i.e. usually composed of different elements) (French, 2007; Hiebert, Gallimore and Stigler, 2002). In Shulman's (1986, 1987) work, this is pedagogical content knowledge, defined as knowledge of content and pedagogy.

This classification of knowledge components can also relate to the different types of previously mentioned competences. For instance, specific content knowledge relates more to cognitive competences (use of theory, concepts, and tacit knowledge gained through experience), while application knowledge relates more to functional competences (know-how, what a person should be able to do when working in a certain area). Professional standards also contain personal competences (knowing how to conduct oneself in a specific situation) and ethical competences (possessing certain personal and professional values). While these are also important, their coverage is beyond the scope of this paper.

The two components identified above are manifested in various forms in the standards analysed. Some standards describe these two components in separate sections, while others combine them in the descriptions and do not explicitly distinguish between them. Among the selected standards it is only the Scottish one that has separate sections: a part called "Professional Knowledge and Understanding", which mostly relates to specific content knowledge and one called "Professional Skills and Abilities" concerned with application knowledge. In the other standards the two knowledge components can be identified through, for example, the use of verbs. Verbs and expressions such as "demonstrate knowledge", "have a secure knowledge", "informed by […] knowledge", "have a detailed understanding of" most often relate to specific content knowledge, while verbs such as "use", "design", "implement", "evaluate" or "select" are more application-oriented. Some sections of the English Teacher Standards describe these components in parallel as two facets of a certain content area, such as, in the statement "demonstrate an awareness of the physical, social and intellectual development of children, and know how to adapt teaching to support pupils' education at different stages of development".

On the whole, the professional knowledge components of standards seem to focus more on application knowledge, while specific content knowledge includes broad knowledge domains rather than an actual description of teacher knowledge in detail. Let us now analyse more closely what domains of knowledge the standards include.

Elements of pedagogical knowledge

All professional standards include references to content knowledge and mention, for example, that teachers should know the curricula or subjects taught, and keep this knowledge updated, such as the Teachers' Standards in England and the Ontario Standards of Practice for the Teaching Profession. The Australian Professional Standards for Teachers additionally refer to the "knowledge and understanding of concepts, substance and structure of the content". In the same way, the NBPTS professional standards' five core propositions request teachers to know how this knowledge is "created, organised, linked to other disciplines and applied to real-world settings". The Scottish Standards for Registration request teachers to know and understand the nature of the curriculum and its development, as well as of the relevant areas of curriculum at the specific grades taught (pre-school, primary or secondary). The Standards for Career Long Professional Learning ask to lead curriculum development, with a deep understanding of the place of subject knowledge.

For our analysis, we focus specifically on general pedagogical knowledge to explore the main domains that the selected standards contain. General pedagogical knowledge has been defined in various ways (see details in Chapter 4 by Guerriero in this volume), here we use the definition given earlier in this chapter (p. 55). Some countries (e.g. some states and districts in the United States, Chile, or the province of Quebec in Canada) have

used Danielson's (2013) Framework for Good Teaching as an example to develop their own professional standards (OECD, 2013b). This framework has four key domains (Planning and preparation, Classroom environment, Instruction, and Professional responsibilities) each of which consists of several components. Each domain describes four progressive levels of proficiency (unsatisfactory, basic, proficient and distinguished). In our analysis we used a grounded theory approach (Glaser and Strauss, 1967) to identify and describe elements of general pedagogical knowledge in the selected standards so as not to be biased or limited by any existing frameworks. As the analysis focuses on the professional standards or principles that apply to all teachers within a specific context, in the case of the NBPTS professional standards, the "Five Core Propositions" were selected since they are addressed to all teachers aiming to obtain a certification, regardless of the subject or grade/student age taught (although in some cases we also refer to the Middle Child Generalist standards).

Overall, the selected professional standards share several dimensions of pedagogical knowledge, although these are termed and organised in different ways. On the whole we identified the following as key areas that were covered in all or most of the standards:

- planning
- classroom environment
- instruction
  - student engagement and active learning
  - working with heterogeneous classes (adaptive teaching)
- theories about learning
- assessment
- using data and engaging in research.

In the following, we highlight some key expectations formulated in the selected standards within these areas.

Planning is part of all standards analysed. Some dedicate a separate section to this element (e.g. English, Scottish, and Australian standards) with details about the various components of planning such as planning learning goals, structuring, and sequencing learning programmes or selecting resources in the Australian standards. On the other hand, in the NBPTS Middle Child Generalist standards, planning appears as a more horizontal-type knowledge with mentions in several sections, while it is formulated within a more general statement as in the standards of Ontario.

Classroom environment is the broad concept used in the standards that encompasses classroom management as well as managing the social nature of learning. Knowledge of the classroom environment can have different objectives across professional standards such as student discipline and involvement (England), ensuring adequate physical conditions of the learning environment (Scotland and NBPTS core propositions), and supporting student participation, with discipline, safety and good use of ICT (Australia). The challenge in these professional standards seems to be balancing the expectation for teachers to shape environments where students are treated with respect, but engaging students at the same time to participate in learning. The Scottish professional standards seem to address directly a range of different elements within the classroom environment such as emotions, social, active learning and classroom management. The teacher is generally seen as the main generator of this environment.

Instruction is another key area in several standards. The NBPTS, for example, refers to knowing and being able to use diverse instructional strategies and techniques, and organise instruction. The English teachers' standards refer to using appropriate teaching strategies. A specific goal of knowledge on teaching methods, namely, being able to engage students and facilitate active learning is present across the different standards. All the selected professional standards require teachers to engage students. They encourage more explicitly the social interactions between the teacher and the classroom (known as "direct instruction"). The Ontario (Canada) professional standards, for example, talk about "learning communities", without specifying who is involved in these (teachers, students, or both). The Australian and Scottish professional standards expect teachers to construct learning interactions among students as well. In Australia, a proficient teacher should be able to establish and implement "inclusive and positive interactions" to engage and support all students. According to Scottish professional standards, all teachers should create opportunities to stimulate learner participation in debate.

Most of the professional standards promote active learning at least indirectly, focusing on the teacher, the student or both. Scottish professional standards, for example, encourage active learning by explaining what the student should be doing: they expect student engagement for the planning and enhancement of their own learning programmes. Australian professional standards encourage active learning by explaining what the teacher should be doing: identifying strategies to support inclusive student participation and engagement in classroom activities. English professional standards explain actions for both the student and the teacher. To promote good progress and outcomes from pupils, teachers should encourage pupils to take a "responsible and conscientious attitude to their own work and study (an action the student should perform)". Whereas, to ensure a good and safe learning environment, teachers should use approaches that address students' needs to involve and motivate them (this action is more centred on the teacher).

An important aspect of most standards is working with diversity in the classroom and adapting teaching methods to the individual differences and needs of children. One of the key terms is *differentiated instruction*, meaning instruction that meets the individual needs of all students (Tomlinson, 1999). Differentiated instruction accounts for student's prior knowledge, abilities and past experiences that affect the efficiency with which individual students will learn (Rock et al., 2008; Landrum and McDuffie, 2010) (includes issues of equity due to language, culture and socio-economic status). Adaptive teaching for classroom diversity is a strongly emphatic element in all standards and is the only component that all the professional standards analysed encourage directly. The emphasis is nevertheless different, as some emphasise more *the means* to teach in a context of student diversity (Ontario and Scotland), others emphasise the *different kinds* of student diversity (NBPTS core propositions, Australia), while another refers to *both* the kinds of student diversity and means to teach (England). Some examples are included below:

- **Ontario (Canada) (the means):** They refer to the teachers' capacity to use "appropriate pedagogy, assessment and evaluation, resources and technology in planning for and responding to the needs of individual students and learning communities".
- **Scotland (United Kingdom) (the means):** They refer to a range of teaching strategies and resources to meet the needs and abilities of students, such as: strategies appropriate to the needs of learners as individuals, groups and classes; innovative resources (from ICT to outdoor learning opportunities), professional practice evaluation, transformative learning that challenges assumptions and expands world views.

- **NBPTS- five core propositions (kinds of diversity):** They state that "teachers adapt their practice, as appropriate, on the basis of observation and knowledge of their students' interests, abilities, skills, knowledge, family circumstances, and peer relationships."
- **Australia (kinds of diversity):** They refer to adaptability through knowledge, design of activities or the teacher's capacity to lead other teachers in strategies to cater to differences such as: diverse linguistic, cultural, religious and socioeconomic backgrounds; the different student's learning abilities; or the specific case of the Aboriginal and Torres Strait Islander people.
- **England (United Kingdom) (both)**: They refer to the capacity to "adapt teaching to respond to the strengths and needs of all pupils" through an ability to know when to differentiate; understand the factors that inhibit learning; awareness of physical, social and intellectual development of children; and awareness of their different kinds of needs (e.g. special needs, high ability, non-English native speakers).

Another important element of the pedagogical knowledge contained in the standards is the knowledge and understanding of theories about *how children learn and develop* and how these theories relate to the teaching practice. All standards explicitly require teachers to have knowledge and understanding on learning and development. The Scottish, the Australian and the American (NBPTS – Middle Childhood Generalist) standards all dedicate a separate section to learning and development theories. These usually include knowledge and understanding of how students learn and of the stages of development, although these latter refer to slightly different things. The Scottish standards speak about cognitive, social and emotional development, the English and Australian standards about physical, social and intellectual development, while the American about social, physical, emotional, and intellectual development. The English teacher standards mention knowledge on how students learn and that related to their development in two different sections, while in the Canadian standards this is an integral part of the professional knowledge section. New research in the discipline of developmental cognitive neuroscience, which explores the underlying mechanisms of how learning can be improved, is increasingly being used for instructional practice. Box 3.1 illustrates how one aspect – attention – in the study of cognitive neurosciences appears in the standards.

How learning is assessed, what the various forms and procedures of evaluation are, including formative and summative assessment, also constitute a key component in the standards. All the professional standards refer to assessment and encourage providing feedback to students. Feedback, broadly defined as "information provided to learners about their knowledge and/or performance" (Kahu, 2008: 187), is a key term regarding formative assessment. For example, the English professional standards expect teachers to provide feedback to their students, help them reflect on their performance and encourage pupils to respond to feedback. An interesting feature of the Scottish professional standards is that they promote students' self-evaluation and peer-assessment. Therefore, students would also become their own motors of assessment. In the same way, only Scottish professional standards ask teachers to question students as part of a learning process, with varied questioning strategies that tackle the different learning needs of students.

Box 3.1. **How standards reflect knowledge about how the brain learns**

There are a number of recent findings in the field of developmental cognitive neuroscience that are relevant to teaching (for example, see the chapter by Ansari, et al., this volume). To illustrate the extent to which these are incorporated in teaching standards, we looked at how the concept of attention is covered in the standards.

The professional standards analysed do not provide a definition of attention, but overall they consider that students' *attention* can be enhanced through strategies such as adequate lesson design, use of learning materials, and classroom communication. Australian professional standards request teachers to stimulate students' attention through teachers' capacity to plan, structure, and sequence learning programmes, use effective classroom communication, support student participation, and manage classroom activities.

For the most part however, the standards do not make direct reference to how attention can be stimulated specifically. For example, the Scottish professional standards refer indirectly to attention through teachers' capacity to "use, design, and adapt materials for teaching and learning which stimulate, support and challenge students." English teachers are also expected to engage students' attention through the planning and teaching of well-structured lessons that "promote love of learning and children's intellectual curiosity."

Teachers' knowledge about how to *use data and research* to help assess, evaluate, and improve teaching is again an important aspect in the standards analysed. This appears essentially in two forms: either generally as critical reflection and inquiry or specifically as engaging in/with research and data. Ongoing inquiry, dialogue, and reflection is expected from teachers in Ontario, while Scottish teachers are expected to "systematically investigate, analyse, and evaluate the impact of practice", and both of these standards also expect teachers to engage with educational literature, research, and policy. Critical reflection on the practice is also a requirement in the US NBPTS Core Propositions and the English standards as well. In the latter teachers should take responsibility for improving teaching through professional development, advice and feedback from colleagues. However, there is no explicit reference to engaging with or in research. On the other hand, the Middle Childhood Generalist Standards of the NBPTS include a number of forms of engagement with research: e.g. collaborating with universities, using research, and conducting action research. In Australia, teachers need to engage with research to different extents according to their level of career. Teachers in Scotland are also required to do research on pedagogical theories and practice.

To summarise, the analysis carried out in this section shows that standards share a few main components of teachers' pedagogical knowledge, although the specific elements of these components are described in different ways and to varying extents. Differentiated instruction, engagement, student feedback and classroom management are the aspects most shared across the teacher professional standards analysed. Differentiated instruction seems to be the element that is most strongly present across all the professional standards analysed, possibly requesting teachers to adapt their practice to the various ways in which students can be different (socio-economically, culturally, ability levels, having special needs, etc.). This is consequent with the previous section's findings that professional standards expect teachers to adapt more easily as they gain experience. This suggests an important emphasis on equity issues in the definition of teacher competence in the frameworks analysed. We have also seen that while reflecting on one's own teaching practice is required in all documents analysed, explicit expectations on engaging with or in research are not part of all standards.

Conclusions

To explore how teachers' professionalism and teachers' knowledge are manifested in key documents, namely, qualifications frameworks and professional standards, this chapter followed two pathways of analysis. The first pathway aimed to understand what these documents are by summarising the definitions of the main concepts related to standards and qualifications frameworks, and exploring how these frameworks relate to each other to guide teachers' professionalism. This pathway found that competences, competencies, qualifications, skills and other related terms still lack clarity on what they mean. Nevertheless, there seems to be a growing consensus on the objectives these concepts should be able to fulfil, for example, being broader to comprise the complexity of an action, and increasingly flexible to recognise that learning can happen in different contexts and be able to capitalise learning opportunities from them. This is relevant for the recognition and valorisation of professional training opportunities in practice.

The second pathway aimed to compare the content of professional standards' in terms of key areas of teachers' knowledge focusing in particular on pedagogical knowledge, such as planning, instruction, learning theories and assessment. We found that professional standards share a number of elements, of which the most strongly accentuated is differentiated instruction.

The knowledge content that the standards identify as characterising a successful professional show some similarities in their general characteristics, such as a broad description of competences/competencies, encouraging diversity in practice and addressing innovation in teaching. The more expert the teachers, the more adaptable they are expected to be across these frameworks. This is a more interesting finding if we consider that "competence" relates to the ability of an individual to deal with complexity, unpredictability, and change. Hence, as shown in this paper, professional standards understand competence as the *capacity to use and to adapt knowledge*. A higher level of competence would lead to more evidence of self-directedness and critical reflection (meta-competence) across domains (Sultana, 2008). At the same time, the emphasis put on the teacher's capacity to adapt (through the use of different teaching strategies, by focusing on the possible differences of students, or both) also suggests a shared importance that these frameworks place on equity.

An analysis of the components that comprise "professional knowledge" shows that the professional standards focus on helping professionals translate knowledge into practice. Professional standards do not always clarify what comprises the "specific content knowledge" expected from a professional, but explain instead what implies mastering this knowledge component. The "application knowledge" refers to the knowledge needed by the professional to accomplish a successful use of specific content knowledge during practice. Both specific content knowledge and application knowledge are crucial to distinguish a profession. They both answer the key questions: what kind of knowledge distinguishes this profession from other professions; and what specific purpose does this body of knowledge serve that makes it distinct.

This chapter shows that adaptability to different students and the environment is a key element of professional competence, as identified by standards. As a consequence, it seems important that continuing professional development as a wide concept encompassing all forms of formal and non-formal learning opportunities also have a greater flexibility to offer teachers not only to acquire but also to create and adapt knowledge from and through research on learning. This approach would help better reflect the complexity of the teaching profession and better address the needs of its professionals.

Notes

1. TALIS is the international survey that collects data from teachers and school leaders in various areas related to the teaching and learning. More on the project is available on its website: www.oecd.org/edu/school/talis.htm.
2. Improving Schools is a series of reviews of national policies for education. Reviews and other related material are available for Iceland, Mexico, Norway, Sweden and the UK (Scotland and Wales) at www.oecd.org/edu/bycountry/.

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