



6

Examining Teacher Practices and Classroom Environment

This chapter examines different types of teaching practices, teachers' beliefs and classroom environments. Specifically, the chapter examines the teaching and professional practices that teachers report using in their work and their beliefs about the nature of teaching and learning. The chapter provides analyses of teaching environments and explores the relationship between teaching practices, teachers' beliefs, classroom environments and school leadership. Implications for policy and practice are discussed based on the results presented.

Highlights

- Teachers who report participation in professional development activities involving individual and collaborative research, observation visits to other schools or a network of teachers are more likely to report using teaching practices that involve small groups, projects requiring more than a week for students to complete and information and computer technology (ICT).
- Roughly two-thirds of teachers report a positive classroom climate, which corresponds to a greater likelihood of using teaching practices involving small groups, projects requiring more than a week and ICT. Thus, the majority of teachers perceive that they experience a good learning environment in which to engage students in learning.
- Regarding student assessment practices, teachers generally report frequent observation of student work accompanied by immediate feedback and development and administration of their own assessments. However, wide variations across countries were reported on these and other assessment practices.
- Teachers' beliefs about teaching and learning are mostly a function of differences in the teachers themselves. School environment variables are not a major factor in explaining teachers' beliefs about teaching and learning.
- Overall, teachers spend about 80% of their time on actual teaching and learning. However, approximately one in four teachers in more than half of the participating countries report losing at least 30% of their time to classroom disruptions and administrative tasks. These findings indicate that teachers in several countries could benefit from help with respect to managing classroom disruptions.

INTRODUCTION

Quality instruction encompasses the use of different teaching practices, and the teaching practices deployed by teachers can play a role in student learning and motivation to learn (Seidel and Shavelson, 2007). Furthermore, teachers' decisions on what to do in the classroom are dependent on many factors. For example, teachers often make decisions about pedagogical practices to use in the classroom based on their beliefs about the nature of teaching and learning (Beyer and Davis, 2008; Pajares, 1992; Speer, 2008). Moreover, many teaching practices may be affected by other factors, including teacher characteristics (such as, gender, subjects taught, level of formal education and training and professional development training), school climate and classroom climate (OECD, 2009; Richardson, 1996; Richardson et al., 1991; Shapiro and Kilbey, 1990). A positive classroom climate is cultivated when teachers work with their students to develop a safe, respectful and supportive environment that facilitates student motivation and learning, while a positive school climate reflects a good atmosphere and social networks in a school (Brophy and Good, 1986; Loukas and Murphy, 2007; Woolfolk, 2010). Positive school and classroom climates will result in less disruptive behaviours and result in more time for teaching and learning (Guardino and Fullerton, 2010; Martella, Nelson and Marchand-Martella, 2003).

Another related aspect of teachers' professional practice is the degree to which teachers work together to improve student learning. Co-operation among teachers can facilitate resource sharing, including the exchange of ideas (Clement and Vandenberghe, 2000; Murawski and Swanson, 2001). Teachers' professional practices are also related to some of the factors previously identified. For example, teachers who receive more professional development are more likely to co-operate with other teachers for teaching support and on ideas to improve teaching (OECD, 2009).

Figure 6.1 provides a framework for the relationship between teaching practices, teacher beliefs, school- and classroom-level environments and impacts on student learning and teachers' job-related attitudes. The non-directionality of the relationships shown in the figure is indicative of the bidirectional nature of the relationships between the variables.¹

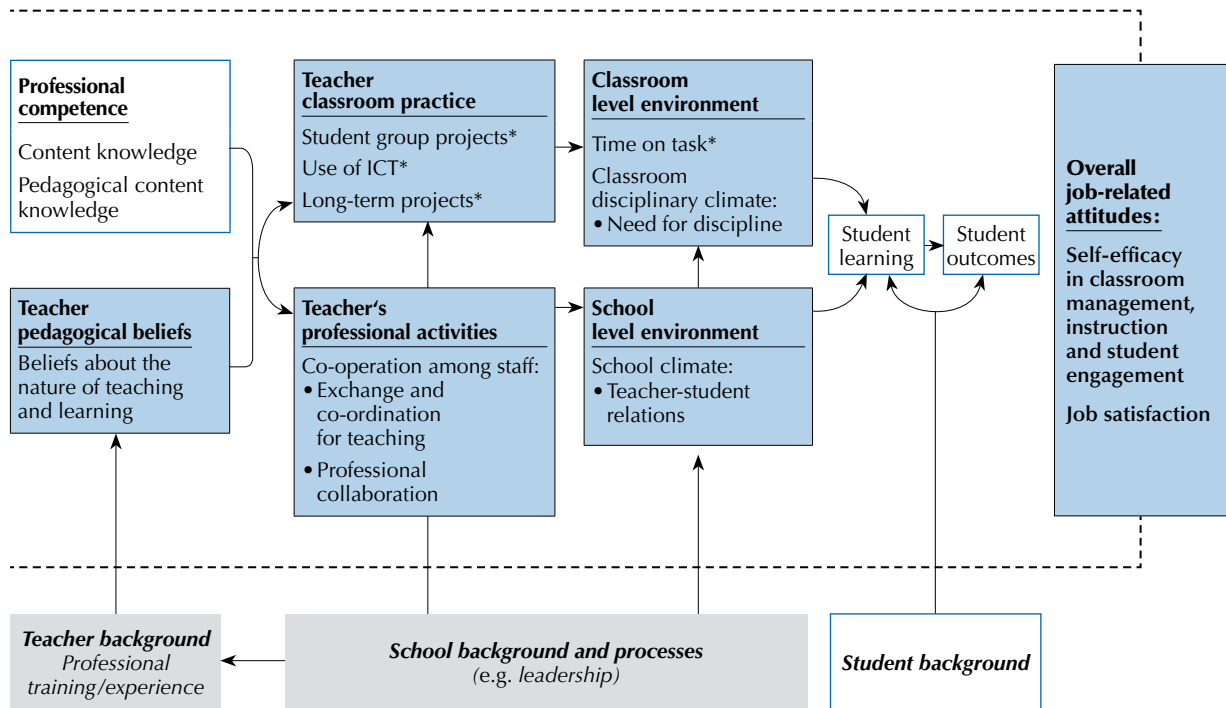
Theoretical background, review of literature and analytical framework

One of the key goals of the OECD Teaching and Learning International Survey (TALIS) is to examine teaching practices that teachers report using in the classroom and how these practices relate to the beliefs that teachers hold and the environments in which teachers work. Hence, this section of the chapter presents a framework for the relationship between teaching practices, teachers' beliefs, classroom environment, school climate and job-related attitudes. Although TALIS is not designed to explore student achievement and motivation to learn, as shown in the previous TALIS report (OECD, 2009), the framework provides a holistic picture of how teacher-related factors can enhance student learning and motivation.



■ Figure 6.1 ■

Framework for the analysis of teaching practices and beliefs¹



1. Constructs that are covered by the survey are highlighted in blue; single-item measures are indicated with an asterisk (*).

Because teaching shapes the future of the young, educators and policy makers in many countries seek to understand and support effective teaching practices that can facilitate student learning and achievement. Certain teaching practices (or strategies) engender effective classroom learning (Hattie, 2003; Hattie and Timperley, 2007; Marzano, 1998; Marzano, Pickering, and Pollock, 2001). For example, in a report on research-based strategies, Marzano, Pickering and Pollock (2001) reported on effective teaching practices for increasing student achievement. These include co-operative learning activities, summarising and note taking, the use of questioning and so forth. One important distinction is between active and passive teaching strategies, which differ in the degree to which students are engaged in the process of learning. When teaching is characterised mainly by strategies involving lecturing, with very little student involvement, such strategies are said to be passive. Conversely, when teachers design instructions such that students play a central role in the learning process, such strategies are known as active teaching practices (or strategies). In active teaching, a teacher may ask students to discuss a concept in groups or engage in concept mapping or some reflective activities that require deep thinking (Adesope and Nesbit, 2013; Orlich et al., 2013). A number of studies point to the positive effect of using active teaching strategies in the classroom. Indeed, there is widespread use of active, co-operative and project-based learning strategies that have been found to improve student learning (Dunlosky et al., 2013; Johnson and Johnson, 2009).

Although there is no doubt that effective teaching practices engender student learning and motivation, the teaching practices that teachers actually use in the classroom hinge on several important factors, including teachers' beliefs about teaching and learning. Teachers tend to structure their classrooms according to their beliefs about effective teaching and learning, including how they should carry out their work, how their students learn and how to structure lessons and classrooms to enhance learning. Teachers who believe, for example, that students learn better through group work on projects might engage students more in small group projects or project-based activities. Beliefs that do not align with evidence-based, effective theories of teaching and learning may lead to teaching practices that are inappropriate and ineffective (Lefrançois, 2000). Hence, a related goal of this chapter is to uncover how teaching practices are related to teachers' beliefs.



Teaching practices and teachers' beliefs are sometimes rooted in personal experiences that are shaped by cultural norms and also can be formed through information acquired via educational training as well as socialisation in the school in which a teacher works. Hence, this chapter explores teaching practices and how they are influenced by teacher characteristics and backgrounds as well as where variances in responses lie (teacher, school or country level). The framework also explores the relationship between teacher co-operation and school leadership factors. Research has shown that school climate plays a major role in fostering effective teaching and learning and influences job-related attitudes, including teacher stress and efficacy (Chong et al., 2010; Collie, Shapka and Perry, 2012; Cohen et al., 2009). Teachers are positively influenced when school leaders encourage collaboration among teachers, students, families and other school staff. Such collaborations may influence all members of the school and enhance not only the classroom climate but also the entire school climate.

Classrooms have distinctive features that influence learning. Teachers are often concerned with how best to manage their classrooms, promote learning and minimise disruptive behaviours. The term "classroom management" refers to all the actions that teachers take to organise instruction and classrooms effectively to facilitate student learning (Emmer and Evertson, 2009; Evertson and Emmer, 2009; Evertson and Weinstein, 2006; Moore, 2014; Woolfolk, 2010). Woolfolk (2010) suggests three positive outcomes of effective classroom management. When classrooms are effectively managed and relatively free of disruptive behaviours, students have more access to learning, more time for learning (time on task) and a better ability to self-regulate or manage their learning. Taken together, these positive outcomes of effective classrooms result in higher academic achievement for students. The framework in this chapter also explores classroom-level factors, such as how teachers spend their class time in terms of teaching, administrative tasks and keeping order in the classroom, as well as the classroom disciplinary climate.

Student academic performance and learning is beyond the scope of TALIS. Nevertheless, the framework demonstrates how the previously mentioned factors might result in improved student learning and academic performance. In addition, although this chapter does not cover job-related attitudes, the framework illustrates that all the factors described here can result in improved teacher self-efficacy and job satisfaction. According to Bandura (1990), self-efficacy is affected through reciprocal interaction between cognition, behaviour and the environment. Thus, social cognitive theory predicts that a teacher's behaviour will be shaped through the interactions between their beliefs, behaviour (practices) and environment (classrooms) (Bandura, 1989). Indeed, Klassen and Chiu (2010) found that teachers experience an ongoing commitment towards the profession when they have high self-efficacy, believing in their capabilities to apply appropriate learning strategies. (See Chapter 7 for a discussion of such job-related attitudes.)

The relationships between teaching practices and associated factors are not linear. For example, successful teaching practices may lead to changes in beliefs, and the beliefs that teachers hold can in turn drive teaching practices (Pajares, 1992; Sheen and O'Neill, 2005; Smagorinsky et al., 2004). The chapter uses representative data from TALIS countries to explore the relationships between teaching practices and the previously mentioned factors. Specifically, this chapter seeks to understand the profiles of teaching practices and how those profiles relate to teaching beliefs and teacher characteristics (including initial training and professional development). In addition, the chapter presents profiles of teachers' professional practices (including teacher collaboration) and how these relate to teacher characteristics and school climate.

Organisation of the chapter

This chapter begins by looking at the profiles of teachers' teaching and professional practices (which include teacher collaboration) and then explores how teaching practices relate to teaching beliefs, teacher characteristics (including initial training and professional development) and classroom context. The chapter continues with a discussion of how teachers' professional practices relate to teacher characteristics, school leadership and school climate. The next section looks at how teachers spend their time and then discusses the relationship between teachers' working time and the school climate. The analyses in this chapter also try to take into account the degree to which teacher, school or country factors contribute to the variances in teachers' beliefs, teacher co-operation and classroom environment.

Classroom teaching practices

Teaching practices are linked to a host of factors such as teaching beliefs, professional development training and teacher characteristics (OECD, 2009; Vieluf et al., 2012). Teaching practices deployed by teachers can play a significant role in the degree to which students learn. This section provides a description of teaching practices reported by teachers participating in TALIS.



The TALIS survey asked teachers to identify a particular class from their teaching schedule and then respond to a series of questions about the frequency with which they used a number of practices in this target class (Table 6.1). As shown in Figure 6.2, of the eight practices examined, the two types of practices that teachers report using most frequently on average across countries are presenting a summary of recently learned content and checking students' exercise books or homework. On average, more than 70% of teachers across TALIS countries report engaging in any of these types of practices frequently or in all or nearly all lessons. Teachers in Iceland, however, report presenting a summary of recently learned content in their classes much less frequently than average (only 38% report doing this frequently or in all their lessons). Similarly, compared with the average, many fewer teachers in Iceland (47%), but also in Korea (53%), Sweden (51%) and Flanders (Belgium) (53%), report checking students' exercise books or homework frequently or in all lessons.

On average, more than two-thirds of teachers (68%) across countries report that they frequently refer to a problem from everyday life to demonstrate why new knowledge is useful. Using this practice can provide students with an idea of why the topic they are learning about is relevant and how it might be useful in their own lives. However, less than half of the teachers in Iceland (40%), Korea (50%) and Sweden (49%) report doing this.

More than two-thirds of teachers (67%) on average report that they frequently let students practice similar tasks until every student has understood the subject matter, though less than half of the teachers in Iceland (48%), Japan (32%) and Korea (48%) report this.

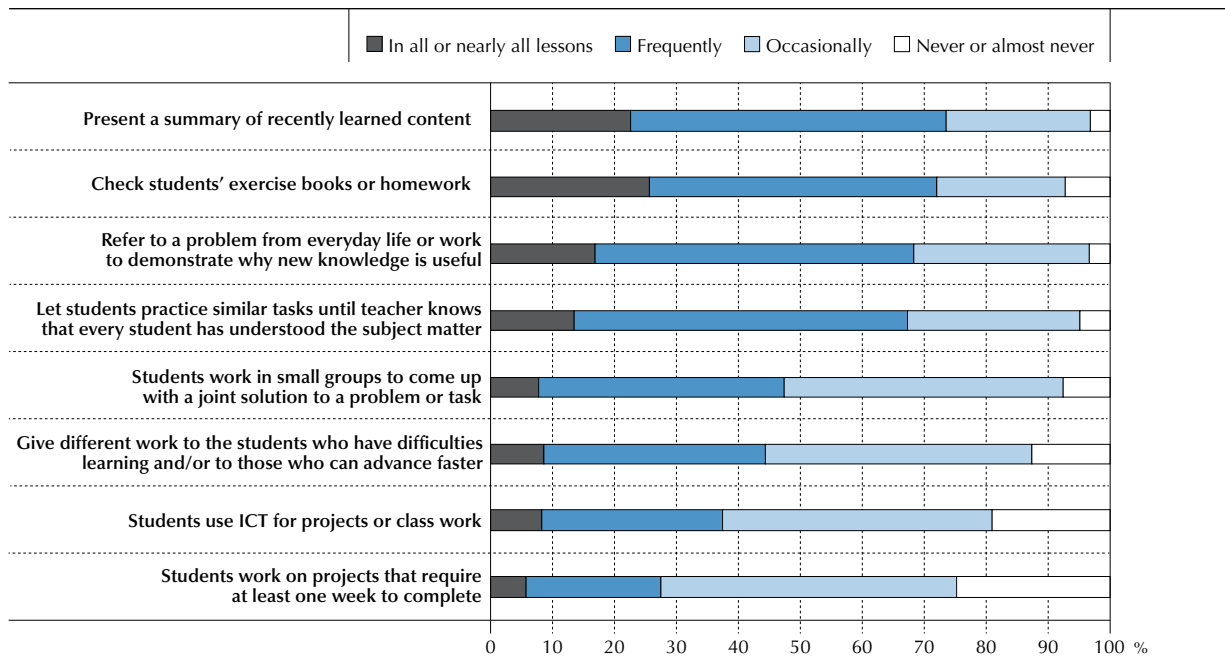
Less than half of teachers (44%) on average report regularly giving different work to those students having difficulties learning and/or those who can advance faster. The use of this practice especially seems to vary among countries, with only 20% of teachers in Korea and the Netherlands using it frequently or in every lesson, while 67% of teachers in Norway and Abu Dhabi (United Arab Emirates) report doing so. This can be a challenging – yet increasingly necessary – task for teachers. It also requires additional planning and preparation for each lesson to provide multiple tasks for students that progress at different rates.

The three remaining practices presented in Table 6.1 and Figure 6.2 are discussed in more detail below.

■ Figure 6.2 ■

Teaching practices

Percentage of lower secondary education teachers who report using the following teaching practices¹



1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable. Items are ranked in descending order, based on the percentage of lower secondary education teachers who use the following teaching practices "frequently" or "in all or nearly all lessons".

Source: OECD, TALIS 2013 Database, Tables 6.1 and 6.1.Web.

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Box 6.1 discusses the teaching practices reported by primary and upper secondary school teachers for those countries with available data.

Box 6.1. Teaching practices used in primary and upper secondary schools

Tables 6.1.a and 6.1.b report the percentages of teachers who use certain teaching practices frequently or in all or nearly all of their lessons in primary and upper secondary education.

On average across the countries that participated in both the primary and lower secondary surveys, a higher percentage of primary school teachers (84%) than lower secondary school teachers (72%) report checking students' exercise books or homework. More teachers at a primary level also report giving different work to students who can advance faster or have learning difficulties (66%) than their peers in lower secondary schools (44%). This difference is especially apparent in Flanders (Belgium), where 74% of primary teachers report using this practice frequently or in every lesson, whereas only 28% of lower secondary teachers do. As with lower secondary school teachers, the practices reported by the fewest primary teachers as being used frequently include giving students projects that take a week to complete and using ICT. The notable exception is found with primary teachers in Mexico, 84% of whom report assigning projects that require more than a week to their pupils (as opposed to 31% of primary teachers across the six countries surveyed).

Less variation is seen between teachers of upper and lower secondary schools. Across countries where data are available for both levels, fewer upper secondary school teachers report frequently giving different work to struggling or advanced students (35% vs. 44%) and more upper secondary school teachers than lower secondary school teachers report that students frequently use ICT (57% vs. 37%).

The three practices remaining – involving students working in small groups, projects that take more than a week to complete and projects requiring students to work with ICT – are those on which this chapter focuses. As discussed earlier in this chapter, the literature suggests that these practices can be conceptualised as active practices. The choice of these teaching practices does not suggest that they are always effective for learning. As with other teaching strategies, their effectiveness largely depends on how they are implemented in the classroom (Chang and Lee, 2010; Johnson and Johnson, 2009; Parsons, Dodman and Burrowbridge, 2013; Prince, 2004; Schmidt et al., 2009). Box 6.2 provides more details regarding the rationale behind the choice of these three practices.

Box 6.2. Analysis of the active teaching practice items in TALIS

TALIS asked teachers to indicate the frequency with which they used eight teaching practices throughout the year in a specific target class. An item analysis indicated that three of the eight practices had the largest item discrimination values of the set. This suggested that these items may be most informative about teachers' beliefs compared with the other items included in the TALIS questionnaire. Additionally, the literature on teaching practices cited earlier in this chapter supports the selection of these items as being representative of active teaching practices. The three items were (a) students work on projects that require at least one week to complete, (b) students use ICT for projects or class work, and (c) students work in small groups to come up with a joint solution to a problem or task. These practices promote skills that students should possess for academic success and may be highly sought after in post-secondary education and the workplace. See Box 2.5 in Chapter 2 for more information regarding interpreting logistic regression results and Annex B for more information about the analyses performed in this chapter.

Figure 6.3 displays the proportions of teachers in each country who report using active teaching practices frequently or in all lessons (see also Table 6.1). As the figure shows, teachers in most countries report more use of practices involving small-group work compared with ICT or projects lasting longer than one week. Nearly half (47%) of the teachers on average report frequently using practices involving students working in small groups. In contrast, just over a third of teachers on average (37%) report using practices involving ICT frequently, and just over one-quarter (27%) report using practices involving projects that required at least one week to complete. In Australia, Chile, Denmark, Mexico, Norway

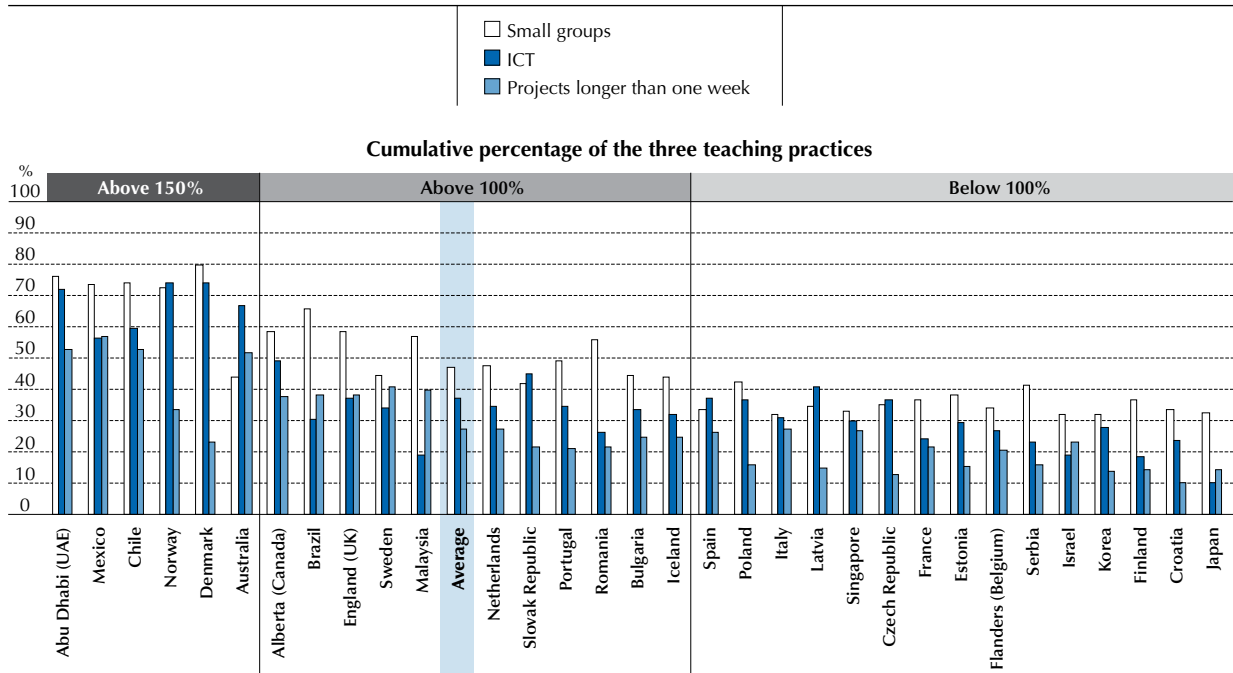


and Abu Dhabi (United Arab Emirates), at least two of the active teaching practices were reported to be used frequently by more than half of the teachers. Box 6.3 provides an example of government support for programmes dedicated to improving classroom practice using ICT.

■ Figure 6.3 ■

Teaching practices by country

Percentage of lower secondary education teachers who report using the following teaching practices “frequently” or “in all or nearly all lessons”¹



1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable. Countries are ranked in descending order, based on the overall percentage of teachers who are using the three teaching practices “frequently” or “in all or nearly all lessons”.

Source: OECD, TALIS 2013 Database, Table 6.1.

StatLink <http://dx.doi.org/10.1787/888933041953>

Box 6.3. Government support for system-wide use of ICT in the classroom: Portugal

From 2007 to 2011, Portugal made significant investments in technology for education, equipping schools with lab computers, interactive whiteboards, wireless networks and fiber broadband connections. This investment was a top priority for the government under its “Technological Plan”, which also provided laptops for more than 1.5 million primary and secondary school students and teachers through the well-publicised Magellan and e-escola programmes. This unprecedented access to technology sparked a wave of innovative teaching practices in many classrooms across the country, creating new opportunities for use of and access to technology, particularly for students coming from lower income backgrounds. Post implementation, it was noted that further adoption of these innovative practices could have been facilitated by increased teacher professional development and exchange of good practices.

Although the government is no longer funding these initiatives, the classroom innovations remain, and the country has seen a difference in their students’ results on the 2009 Programme for International Student Assessment (PISA), in particular. Students in Portugal ranked first in terms of their reported level of confidence in completing high-level ICT tasks, as well as in other ICT-related skills, such as the ability to create multimedia presentations (OECD, 2010).

Source: Portuguese Government, 2014.

What accounts for the variance in teaching practices?

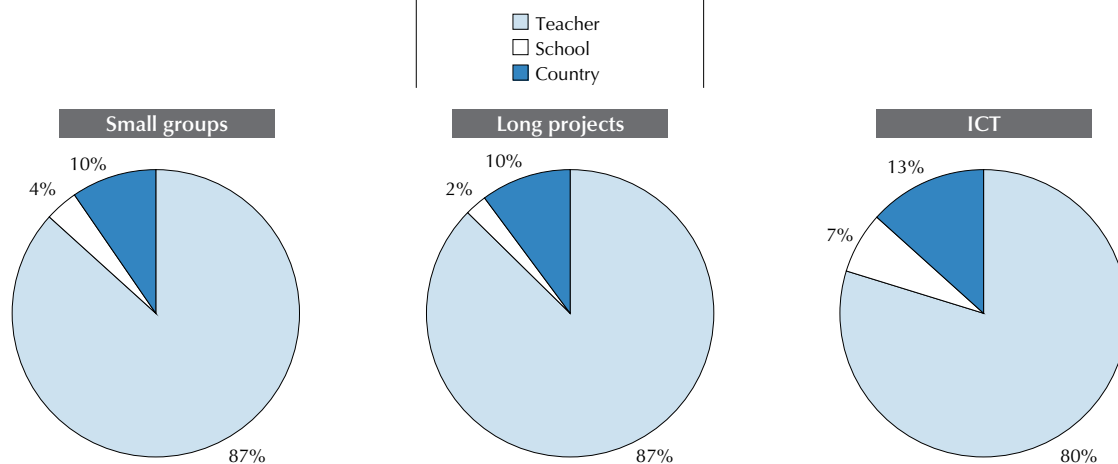
The analyses in this section examine the extent to which the variance observed in teaching practices is accounted for by factors at the country, school or teacher level. In other words, is the variation in use of these practices accounted for more by factors related to the country, the school where a teacher works (e.g. the culture or composition of teachers in the school) or by characteristics of each individual teacher? Knowing the source of variation contributes to the understanding of which variables (e.g. school climate or individual teacher behaviour) may explain practices and where efforts should be directed to change practices.²

Figure 6.4 displays variance at the country, school and teacher level for teaching practices involving the use of small groups of students, projects requiring more than a week to complete and the integration of technology into the classroom. This figure displays how much of the variation in responses to these teaching practice items is accounted for at each level of the sample. Such figures point to whether the differences in responses are mostly due to factors at the teacher level, the school level or the country level. Across all three teaching practices, the conclusion is the same: Most of the total variance seen in teachers' reports of these practices arises from differences between individual teachers. Variance attributable to school-level and country-level differences is minimal. Therefore, efforts to change teaching practices are more likely to have an impact if directed towards individual teachers. The variance components for the remaining five teaching practices examined in TALIS are similar in breakdown to the three practices on which this chapter focuses.


■ Figure 6.4 ■

Distribution of variance – small groups, projects, ICT

Distribution of variance in lower secondary education across the three levels of country, school and teacher



Source: OECD, TALIS 2013 Database.

StatLink  <http://dx.doi.org/10.1787/888933041972>

It is noteworthy that the use of practices involving ICT seems to be more dependent on school factors than the other two types of practices examined, ostensibly because ICT requires a lot of financial commitment by the school. Variability in the reported use of practices involving small groups and projects requiring more than one week appears to be explained almost exclusively at the teacher level. In contrast, up to one-fifth of the variability in the use of technology is accounted for by school-level factors (7%) and by country-level factors (13%). So, although in general the use of specific practices tends to be mostly a function of the individual teacher, when it comes to practices that require more resources, such as the use of ICT, school- and country-level factors tend to play slightly more of a role.

These findings are consistent with the TALIS 2008 report, which concluded that most of the variability in teachers' reported use of teaching practices originated at the individual teacher level. Future work examining which school-level factors account for the differences between schools is forthcoming in subsequent TALIS publications, which will use school-level data available from PISA 2012.



Given the importance of teacher characteristics in shaping teachers' use of teaching practices, the following section examines the relationships between these active practices and teacher characteristics, teachers' professional development and classroom context. Box 6.2 provides details on the specific teaching practices items retained for these analyses and on the analyses conducted.

Teacher characteristics

This section examines the possible relationships between each of the three types of practices and teacher characteristics, such as gender, subjects taught, years of experience, level of education and feelings of preparedness for the content, pedagogy and practice in the subject taught.

In some countries, gender appears to be related to the likelihood of teachers reporting using these practices frequently, all other factors being equal (Tables 6.2 to 6.4). In 14 countries, female teachers are more likely than their male counterparts to report frequently using practices that involve having students work in small groups (Table 6.2). Similarly, female teachers in nine countries are more likely to report frequently using practices that involved projects that require at least one week to complete, although the opposite was the case in Flanders (Belgium) (Table 6.3). Finally, male teachers in four countries (Finland, France, Japan and Korea) are more likely to report frequently using ICT, while female teachers are more likely to use this practice in three countries (Brazil, Bulgaria and Mexico) (Table 6.4).

TALIS data suggest that a teacher's subject field appears to be related to the teacher's choice of teaching practices. With some exceptions, humanities, mathematics and science teachers are less likely than teachers in other subject fields to report using practices involving small group work. Although in seven countries, humanities teachers are more likely to report the frequent use of practices involving small groups, in ten other countries they are less likely to report this. In only two countries (Iceland and Abu Dhabi [United Arab Emirates]) are mathematics and science teachers more likely to report frequently using small group work, while in 15 other countries these teachers are actually less likely to do so (Table 6.2).³

As mentioned earlier, fewer teachers on average report that they frequently use projects requiring more than a week than report using other types of practices (Table 6.1). In all countries, mathematics and science teachers, compared with teachers in other subjects, are less likely to report using projects that require at least one week to complete (Table 6.3). Similarly, humanities teachers in most countries are also less likely to report using these types of projects than are teachers in other subject areas. Given the low likelihood of teachers reporting the use of these practices in mathematics, science and humanities, compared with other content areas, a finer-grained analysis could be useful to examine the malleable factors within each content area that are related to the use of these practices. For instance, there may be factors related to teaching mathematics that are not present in other domains, such as the humanities, that create barriers to using such techniques. Future studies examining these three teaching practices and related classroom- and teacher-level variables within individual mathematics, science and humanities content areas would provide a clearer picture of their use.

Moreover, the frequent use of ICT in the classroom also does not appear to be taking place in mathematics and science. Only in Denmark and Norway are mathematics or science teachers more likely than their colleagues in other subject areas to report using practices with ICT. In 19 other countries, mathematics and science teachers are significantly less likely to report frequent use of ICT in their practices. In a few countries, teachers of humanities are more likely than other teachers to report frequent use of ICT by students (Australia, Denmark, Iceland, Norway, Sweden and Alberta [Canada]), but in 14 other countries, the opposite is the case (Table 6.4).

Teachers' years of experience does not appear to be related to the likelihood that they will report using any of these types of practices. Significant (though small and inconsistent) results were found in only a small number of countries.

Only a handful of countries exhibit a relationship between teachers' highest level of education and their likelihood to report frequently using these three types of practices, but this relationship is inconsistent across these countries. For example, in the Czech Republic, teachers with higher levels of education (i.e. the equivalent of ISCED level 5A – a Bachelor's degree – or above) are about 40% less likely to report the frequent use of practices involving small groups and about 28% less likely to use ICT than are teachers with lower levels of education, while in Chile, teachers with higher levels of education are 53% more likely to report frequently using ICT, and in Mexico they are 65% more likely to report frequently using practices involving small group work. The inconsistency of the relationships precludes drawing any major inferences across the countries. Future research specifically with TALIS may further examine the relationship between teachers' level of education and the use of certain teaching practices.



Finally, the analyses examined the associations between teachers' reported use of classroom practices and how well prepared teachers feel they are in the areas of content, pedagogy and classroom practices. Of these three relationships, teachers' feelings of preparedness for pedagogy appear to be the most related to the reported frequent use of practices involving small group work (Tables 6.2 and 6.4). In contrast, teachers' feelings of preparedness for content are not highly related to teachers' reports of frequent use of the selected practices in their classroom. Finally, positive associations between feelings of preparedness for classroom practice and reported frequent use of these three selected practices can be observed in a small number of countries. In Japan, Korea and Singapore, teachers who feel more prepared for classroom practice are more likely (in these cases between 46% and 64% more likely) to report frequently using small group work in their classroom (Table 6.2). Moreover, in Singapore, Spain and England (United Kingdom), teachers who feel more prepared for classroom practice are more likely to report frequently using projects that require more than one week to complete (Table 6.3). Finally, in Croatia, the Czech Republic, Korea, Spain and England (United Kingdom), positive associations were observed for the reported frequent use of ICT (Table 6.4). In these countries, enhancing teachers' feelings of preparedness for classroom practice may help promote the frequent use of multiple forms of classroom practice. Observing colleagues' teaching, team teaching and being observed by and reflecting on teaching practices with a mentor might be ways that schools and countries could offer more support in the area of developing a teacher's confidence around his or her teaching practice.

The most consistent factor associated with the use of active learning is the subject matter taught. The consistent connection across all countries is related to the use of projects requiring a longer time to complete and teaching mathematics or humanities. In addition, gender may play a role in this relationship but only for a minority of countries. What is clear is that the use of active learning is largely related to the nature of the subject matter taught and whether it lends itself easily to the use of active learning. Teachers' reported confidence in preparedness in pedagogy of the subject matter they teach is more likely to be of relevance than is preparedness for the content or classroom practices. Future work may examine these examples to understand what unique training teachers receive and to encourage such feelings and use of teaching practices.

Professional development

Professional development examined in TALIS includes participation in workshops, conferences, classroom observations, qualification programmes, networking, collaboration and mentoring (see Chapter 4). TALIS data show that in many countries, teachers who participated in professional development activities are more likely to report the frequent use of the three types of teaching practices – involving small groups, projects taking longer than one week and the use of ICT (see Tables 6.5, 6.6 and 6.7).

As shown in Figure 6.5, the most consistent relationships across countries can be seen between participation in individual or collaborative research on a topic of interest and the reported use of practices involving projects that require at least one week to complete and practices involving the use of ICT. Participation in a network of teachers appears to be mostly relevant for the frequent use of practices involving small group work and projects involving the use of ICT (significant relationships found in 12 and 11 countries, respectively). Fewer, but still between five and seven countries, showed significant relationships between participation in mentoring or peer observation and coaching and the reported frequent use of all three types of active practices.

In countries where significant relationships were found, teachers who participated in these development activities were as much as twice as likely to report using the three teaching practices as were those teachers who did not engage in such development activities. Individual or collaborative research on a topic of interest showed positive associations across most countries, but especially in Norway, where teachers who took part in this activity were more likely to report frequently using all three practices compared with teachers not using such research: These teachers were 77% more likely to report frequently making use of practices involving small groups and projects requiring more than a week and almost twice as likely to report frequently using ICT practices. In Finland, teachers who took part in individual or collaborative research on a topic of interest were approximately twice as likely to report using practices involving small group work and ICT.

Across a number of countries, participation in a network of teachers is also related to an increased likelihood of reporting the frequent use of these three teaching practices. Similarly, in some countries, participation in observation visits to other schools is also positively related to the reported frequent use of the three practices (Tables 6.5 to 6.7). It is perhaps not surprising that teachers who participated in development activities were more likely to report frequently using the three teaching practices (practices involving small groups, projects requiring more than a week and the use of ICT).



■ Figure 6.5 ■


Relationships between teaching practices and professional development activities

Number of countries where a significant positive relationship is found between the reported use of the following teaching practices and the reported participation in the following professional development activities in lower secondary education

	Small group practice	Projects that require at least one week to complete	Use of ICT
Participation in a network of teachers formed specifically for the professional development of teachers	12	6	11
Individual or collaborative research on a topic of interest	10	16	17
Mentoring and/or peer observation and coaching	7	7	5

Cells are shaded based on the number of countries where a significant positive relationship is found between the use of the teaching practice and the professional development activity. Darker tones indicate a higher number of countries where a significant positive relationship is found.

Source: OECD, TALIS 2013 Database, Tables 6.5, 6.6 and 6.7.

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It is likely that when teachers participate in observation visits to other schools, they may be exposed to other ways of using these teaching strategies and return to their classroom with more ideas on how to use them. Indeed, many countries are advancing professional development on effective use of these teaching practices. For example, there is a growing interest in making competency in the use of ICT a requirement for many teachers (Dexter and Riedel, 2003; Phelps and Graham, 2004).

Classroom context

The classroom context is an important factor to consider in examining the use of specific teaching practices, as it may well influence a teacher's choice of practices. Several contextual factors were examined in relation to the three selected teaching practices. Factors such as class size, the proportion of students in the class whose first language is different from the language of instruction, the proportion of low academic achievers or gifted students, the proportion of students with special needs and the classroom disciplinary climate (e.g. waiting for students to quiet down) were included in the analysis to examine their relationship to teachers' reported use of specific practices (Box 6.4). Note that these classroom-level data, including the reported teaching practices used, were all collected regarding a specific target class (results from these analyses are presented in Tables 6.8 to 6.10).

Box 6.4. How classroom context is described in TALIS

The TALIS questionnaire asks teachers about specific characteristics regarding a random class they teach. Details are gathered about class size, student composition (proportions of students whose first language is different from the language of instruction; low academic achievers or gifted students; and students with special needs or behavioural problems or who come from a disadvantaged socio-economic status (SES) and classroom disciplinary climate.

To assess the classroom disciplinary climate, TALIS asked teachers to indicate how strongly they agreed – on a four-point scale ranging from strongly disagree to strongly agree – with the following statements about the target class:

- When the lesson begins, I have to wait quite a long time for students to quiet down
- Students in this class take care to create a pleasant learning atmosphere
- I lose quite a lot of time because of students interrupting the lesson
- There is much disruptive noise in this classroom

See Annex B for more information about the construction of this complex index.

Of the factors examined across countries, classroom disciplinary climate was most consistently associated with the likelihood of reporting the frequent use of the three teaching practices across countries (Tables 6.8, 6.9 and 6.10). In almost all countries, teachers who reported a more positive classroom disciplinary climate were also more likely to report a frequent use of practices involving small group work and ICT. A relationship with the reported use of projects



requiring more than one week was found in fewer countries. One possible explanation of this less-prevalent link is that longer projects require work outside the classroom, and thus the likelihood of teachers using this tool may be less affected by classroom context. Not surprisingly, maintaining a well-behaved student body and classroom environment is related to being able to use practices involving small groups and ICT. When students are actively engaged, there are fewer classroom distractions and disciplinary issues. Teaching practices involving small groups, project-based learning or hands-on or experiential learning keep students engaged and may thus promote a positive classroom climate. Technology, when used effectively, can also promote experiential learning and keep students engaged.

When examining the relationships between the characteristics of students in a class (e.g. proportions of high or low achievers or of students with special needs)⁴ and the use of the three teaching practices, analyses displayed interesting relationships. Teachers in a number of countries who reported a higher proportion of gifted students in their classrooms were more likely to report the frequent use of these teaching practices (ranging from 9 to 11 countries, depending on the practice). In contrast, classrooms with higher proportions of low academic achievers are associated with a lower likelihood that teachers in a number of countries reported the frequent use of these practices (between 6 and 10 countries, depending on the practice). This may be linked with the general climate of the classroom and the amount of time teachers have to spend on management rather than on teaching. Alternatively, teachers in these classrooms may believe that such active practices are not best suited for these students. Teachers with students of different ability distributions in their classroom may need different teaching practices to facilitate effective learning. In addition, while many countries are providing teachers with additional support to meet the needs of special-needs students, such support may not be provided for teachers who work with low-achieving students. Finally, in six countries (Finland, France, Israel, Japan, Norway and Flanders [Belgium]), teachers who report larger proportions of students with special needs in their target class are also more likely to report the frequent use of practices involving ICT in the classroom. A number of special-needs students depend on assistive technology devices to learn, so it is not uncommon for schools to invest in such technologies to support those students and for their teachers to develop teaching practices that involve the use of technology.

Class size seems to have a different relationship depending on the type of practice in question. For example, in five countries (the Czech Republic, France, Israel, Korea and Poland), teachers working in classes with more students tend to be slightly less likely to report the frequent use of practices involving small group work, while in five countries (Denmark, Estonia, Israel, Latvia and Sweden), teachers working with larger classes are slightly more likely to report the frequent use of ICT in their classroom (Tables 6.8 and 6.10). These results are not surprising considering the challenges of promoting small group discussions and student engagement when class size is large. In addition, teachers may use technologies such as clickers (or personal response systems) in large classes (Mayer et al., 2009).

TEACHERS' USE OF STUDENT ASSESSMENT

An important function of student assessment is to allow all students to show what they know and can do in an equitable way (Binkley et al., 2010; Gipps and Stobart, 2004). One way to ensure this is to use multiple assessment approaches and opportunities, including engaging students in their own assessment (OECD, 2013a). Also important is to ensure that teachers are well prepared to effectively ensure formative and summative assessment of students (OECD, 2013a). As seen in Chapter 4, a number of teachers report an unmet need for professional development in student evaluation and assessment practices (see Table 4.13). In particular, more than one in four teachers in Japan, Korea, Malaysia and Sweden identified this as an issue.

Although a full investigation of student assessment practices and their outcomes is beyond the scope of this cycle of TALIS, teachers were asked about the frequency with which they use different types of student assessment practices in a specific target class. This section reports on teachers' use of student assessment practices.

Figure 6.6 shows the average proportions of teachers who report using different student assessment practices in their classroom (see also Table 6.11). Teachers report making frequent use of a variety of assessment practices. On average, teachers in participating countries were most likely to report frequent observation of students accompanied by immediate feedback (80%) and the development and administration of their own assessments (68%). Roughly half of teachers report frequently providing written feedback in addition to summative marks on their students' assignments (55%), and roughly half of teachers also report calling on individual students to answer questions in front of the class (49%). Assessment practices that are used less frequently, including allowing students to evaluate their own progress (38%) and the administration of standardised tests (38%), are still reported by more than a third of teachers. The overall pattern of reported assessment practices suggests larger proportions of teachers are employing forms of assessment that would likely be formative in nature (e.g. observing students and providing immediate feedback) than primarily summative

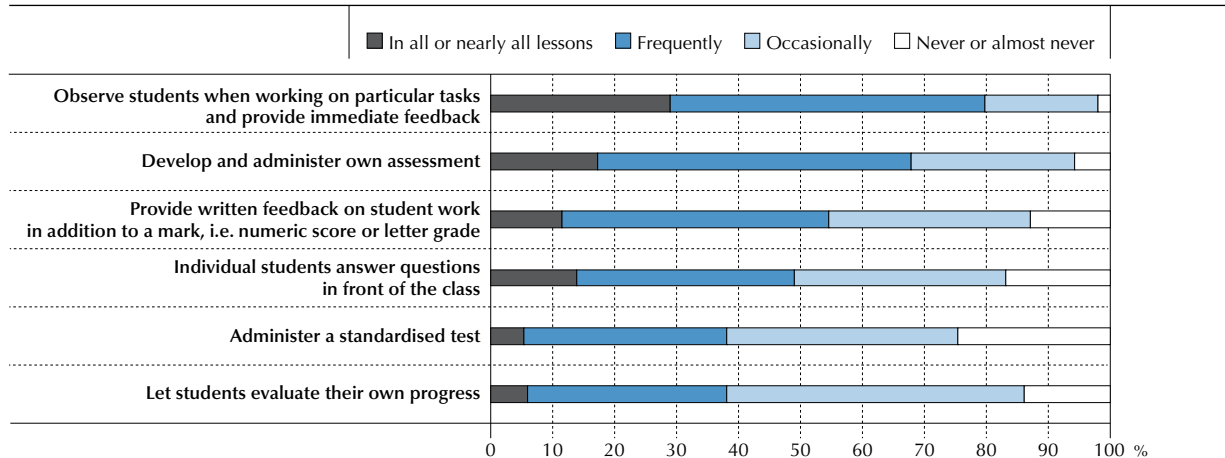


(e.g. administering a standardised test), but that both forms of assessment are used widely. It appears that many teachers in the participating countries are using multiple assessment approaches and opportunities, which is more likely to gather a complete picture of student learning (OECD, 2013a).

■ Figure 6.6 ■

Teachers' use of student assessment practices

Percentage of lower secondary education teachers who report using the following methods of assessing student learning¹



1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable. Items are ranked in descending order, based on the percentage of teachers who use the following methods of assessing student learning “frequently” or “in all or nearly all lessons”.

Source: OECD, TALIS 2013 Database, Tables 6.11 and 6.11.Web.

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The reported use of assessment practices varies widely among countries. The proportions of teachers reporting frequent development and administration of their own assessments ranges from 29% in Japan to 93% in Brazil. Frequent standardised test administration is reported by 8% of teachers in France, compared with 71% in Latvia and Singapore. Only 5% of teachers in Iceland report calling on individual students to answer questions in front of the class, while 80% of the teachers in Italy do. The use of frequent written feedback on student work ranges from 22% in Latvia to 82% in Abu Dhabi (United Arab Emirates) and England (United Kingdom). In France and Iceland, 17% of teachers report frequently allowing students to evaluate their own progress. In England (United Kingdom), 69% of teachers report the frequent use of this practice. Finally, frequent student observation with immediate feedback is reported by 43% of the teachers in Japan, a higher proportion at the low end relative to the reports of other assessment practices, and 94% of those in Malaysia. Considering the power of feedback on student learning (Hattie and Timperley, 2007; Butler and Winne, 1995), teachers may be given additional support on how and when to give feedback to maximise learning.

Box 6.5 provides examples of systems where innovative forms of student assessment are promoted.

Box 6.5. Promoting the use of innovative assessments by teachers in Flanders (Belgium) and Mexico

In the Flemish Community of Belgium, the central education authorities are promoting a shift towards a “broad assessment culture”, which includes a focus on formative assessment and new assessment approaches. It implies the use of “alternative” assessment approaches (compared with tests), including observation, portfolios, reflection sheets and self- and peer-assessment activities (Flemish Ministry of Education and Training, 2010).

In Mexico, the national curriculum (study plan) states that rubrics, checklists, registries of observations, written pieces of work, team projects, conceptual maps, portfolios and written and oral tests should be used. It also requires that students should be frequently involved in self-assessment and peer-assessment activities (Santiago et al., 2012).

Source: OECD 2013a.

TIME SPENT ON VARIOUS TASKS

Teachers' work is composed of a multitude of often competing responsibilities. This section examines teachers' reported working hours overall as well as the time they report spending on various work-related tasks during a typical week. It is important to note that these findings are meant to paint a picture of the typical work week across the entire teacher population in each country and therefore include responses from teachers working full time and part time. Of course, how teachers' working hours are regulated varies among countries and will also have an impact on their actual working hours (see OECD, 2013b). Table 6.12 presents teachers' reports on the number of hours they spend on various tasks throughout the work week.⁵ Across countries, teachers report spending an average of 38 total hours working, ranging from 29 hours in Chile and Italy to 54 hours in Japan.⁶

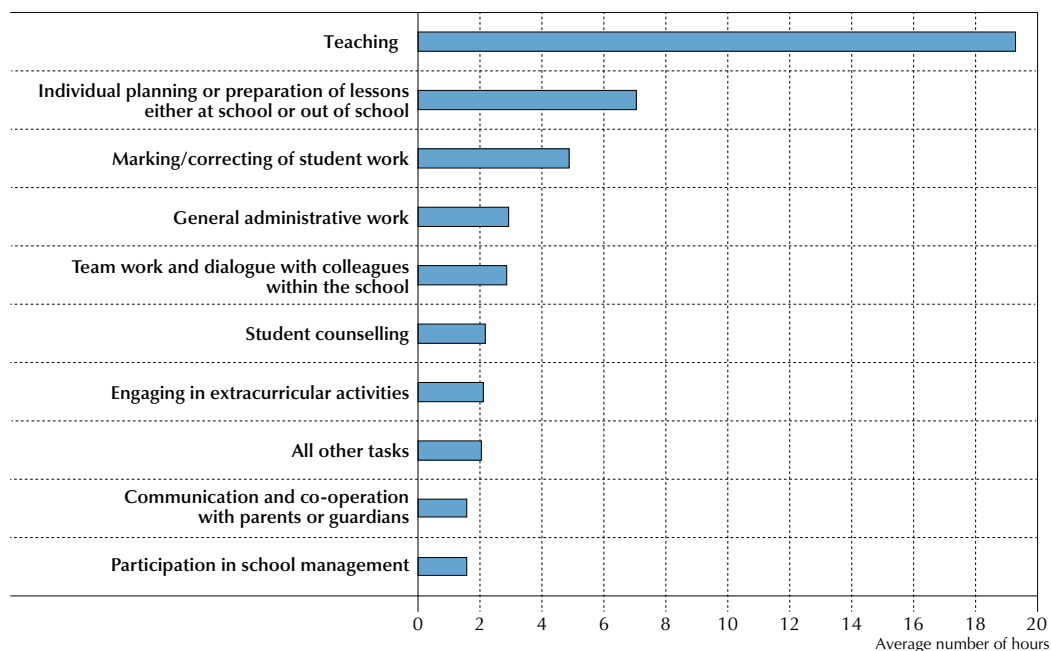
Figure 6.7 shows that, as expected, teachers report spending the majority of their time teaching. The overall average is 19 hours per week, ranging from 15 hours in Norway to 27 hours in Chile (Table 6.12). It is noteworthy that teachers in Japan report spending only 18 hours teaching, meaning they spend substantially more time on other tasks related to their job than they do actually teaching. The average time spent on planning or preparing lessons is seven hours, ranging from five hours in Finland, Israel, Italy, the Netherlands and Poland to ten hours in Croatia. Time spent marking student work averages five hours but is approximately twice as much in Portugal (ten hours) and Singapore (nine hours). Box 6.6 discusses the reported working hours for primary and upper secondary teachers for those countries with available data.

Other tasks, such as school management, working with parents and extracurricular activities, take only an average of two hours per week each. Teachers in Korea and Malaysia report spending twice as much time than the TALIS average on general administrative work (six hours). It is also notable that extracurricular activities are an important aspect of teachers' work in Japan, where teachers report spending eight hours on extracurricular activities, far above the TALIS average of two hours. Box 6.7 provides an example of a Polish study of teachers' working time.

■ Figure 6.7 ■

Teachers' working hours


Average number of 60-minute hours lower secondary education teachers report having spent on the following activities during the most recent complete calendar week¹



1. A "complete" calendar week is one that was not shortened by breaks, public holidays, sick leave, etc. Also includes tasks that took place during weekends, evenings or other off-classroom hours.

Items are ranked in descending order, based on the average number of 60-minute hours spent on the following activities during the most recent complete calendar week.

Source: OECD, TALIS 2013 Database, Table 6.12.

StatLink  <http://dx.doi.org/10.1787/888933042029>



Box 6.6. Working hours in primary and upper secondary education

Tables 6.12.a and 6.12.b show the working hours for teachers at the primary (ISCED 1) and upper secondary (ISCED 3) levels.

Across the countries with data for both levels, primary school teachers report having very similar working hours to their lower secondary school colleagues. The only difference of note is that, on average, primary school teachers report spending 2 hours more teaching per week (21 hours) than their peers in lower secondary schools (19 hours).

The division of teachers' time is also similar for upper secondary teachers, with the exception of time spent on teaching, where upper secondary teachers teach on average 1 hour less per week (18 hours) than their colleagues in lower secondary education (19 hours). In Denmark, Finland, Iceland and Mexico, upper secondary teachers report spending two to three hours less than their peers in lower secondary schools on teaching.

Box 6.7. Teacher working time study in Poland

A large survey on teachers' working time was conducted in Poland between November 2011 and December 2012. It covered teachers of general curriculum subjects from primary, lower secondary and upper secondary schools. Teachers took part in one of two components of the study: 2 617 teachers from 477 schools responded to a questionnaire administered by professional pollsters about their work activities during their previous day, and 4 762 teachers from 921 schools filled in an online self-report questionnaire. The analysis focused on five main tasks: Preparing and conducting classes, preparing and conducting extracurricular activities and marking students' assignments.

An important finding of this study was the non-linear relationship between time spent on teaching and total time spent on other major activities. For teachers who teach less than 18 hours a week, this relationship was proportional. In other words, the more time they teach, the more time they spend on other tasks, such as class preparation. But for teachers who teach 18 hours or more, the time spent on the four other key activities remained constant. In other words, for this group of teachers, teaching more hours per week did not lead to them reporting more hours on tasks such as class preparation or marking students assignments.

Source: Federowicz et al. (2013).

BELIEFS ABOUT THE NATURE OF TEACHING AND LEARNING

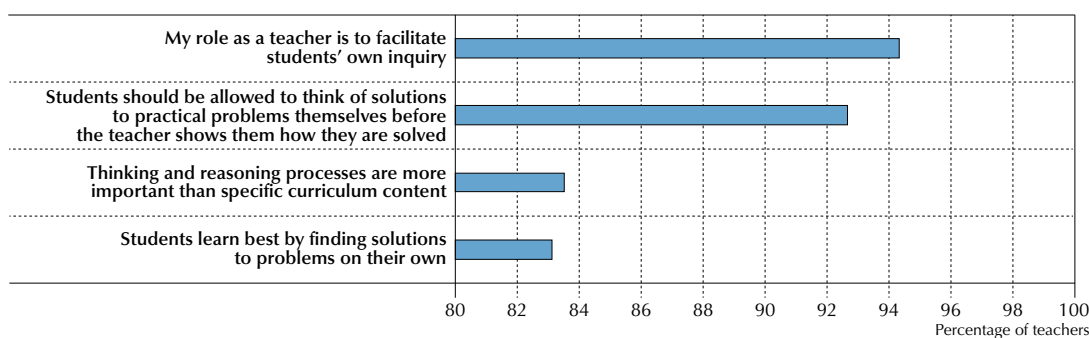
Teachers come into the classroom with pre-existing beliefs about how teaching and learning should be carried out. Such beliefs may be rooted in the teachers' prior experiences, including their pre-service training and in-service professional development (Kennedy, 1997; Richardson, 1996) and may affect practices teachers enact and how classroom environments are structured to promote student learning (Ertmer, 2005; Hofer and Pintrich, 1997). Some researchers have claimed that the teaching practices that teachers employ are shaped both by their teaching experiences in the classrooms and their pre-service training (Zeichner and Tabachnick, 1981). Although the literature on teacher education is replete with debates on the effectiveness of teacher education programmes, there is consensus that research efforts should be devoted to understanding the different components that make up high-quality programmes (Brouwer and Korthagen, 2005; Zeichner and Schulte, 2001). One such component is the need for teacher education programmes to attend to the beliefs of pre-service teachers about the nature of teaching and learning. For example, teacher preparation programmes may prepare teachers for learner-centred classrooms where learners are exposed to inquiry forms of learning. Pre-service teachers trained under such a model might likely adopt (or believe in) more constructivist, student-centred forms of learning. Indeed, there is evidence that teachers' beliefs as well as content and pedagogical knowledge can influence student learning (Darling-Hammond, 1998; Staub and Stern, 2002; Tatto and Coupland, 2003). In this section, the relationship between teachers' beliefs and school-level factors is examined along with the general profile of beliefs about learning.

Table 6.13 reports the percentages of teachers who agree with certain statements about how students learn and the role of the teacher in that process. As shown in Figure 6.8, overall there is strong agreement among teachers that it is their role to facilitate inquiry in the student (94% on average). Also, a majority of teachers believe that students should be allowed to think of solutions themselves before teachers show them (93%). The rate of agreement was mixed across the other variables, but it was generally above 80% across countries for beliefs related to students being able to find their own solutions and that thinking and reasoning skills are more important than content. Notable differences were in Italy, Norway and Sweden, where only between 45% and 59% of teachers agree that students learn best by trying to solve problems on their own. Along the same lines, the Netherlands shows the lowest average percentage of teachers who agree that reasoning skills are more important than content. Box 6.8 describes the data on teaching beliefs reported by primary and upper secondary teachers from those countries with available data.

■ Figure 6.8 ■


Teachers' beliefs about teaching and learning

Percentage of lower secondary education teachers who "agree" or "strongly agree" with the following statements



Items are ranked in descending order, based on the percentage of teachers who "agree" or "strongly agree" with the statement.

Source: OECD, TALIS 2013 Database, Table 6.13.

StatLink  <http://dx.doi.org/10.1787/888933042048>

Box 6.8. Beliefs about teaching in primary and upper secondary education

Tables 6.13.a and 6.13.b present the percentages of primary (ISCED 1) and upper secondary (ISCED 3) teachers who agree with various statements regarding their beliefs about teaching.

Across levels of schooling, there is very little difference in teachers' beliefs about how students learn and how teachers contribute to that learning. This is true both across countries participating at each ISCED level and at the individual country level. The differences are at most three to four percentage points and are seen at the upper secondary level. For example, 53% of lower secondary school teachers in Norway believe that students learn best by finding solutions to problems on their own, while 57% of upper secondary school teachers in Norway have this belief. In Iceland, 91% of lower secondary school teachers believe that students should be allowed to think of solutions to problems before they are shown by the teacher, while only 87% of upper secondary school teachers feel this way. This similarity in response across level indicates that teachers' beliefs are more likely shaped by national culture than by the level of students they teach.

What accounts for the variance in teachers' beliefs?

As was done for the teaching practices earlier in this chapter, the variance was partitioned at the country, school and teacher level for the index of constructivist beliefs (Box 6.9). This enabled the determination of the extent to which these beliefs are related to the country in which a teacher resides, a school where the teacher works or the individual teacher. Understanding where the source of variance in teaching beliefs resides can assist in understanding what level of information is needed to better explain or understand these beliefs. For example, if the variance is associated mainly with the school in which a teacher is employed, to change beliefs it may be best to focus on interventions that change the school climate.



Box 6.9. Description of the index of constructivist beliefs

To assess the kinds of beliefs teachers hold about how students learn, TALIS 2013 employed an index of constructivist beliefs that asked teachers both about the ways they believe students learn best and how they as teachers might facilitate this learning. Teachers were asked on a four-point scale (ranging from strongly disagree to strongly agree) to indicate how strongly they agreed with the following items:

- My role as a teacher is to facilitate students' own inquiry
- Students learn best by finding solutions to problems on their own
- Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved
- Thinking and reasoning processes are more important than specific curriculum content

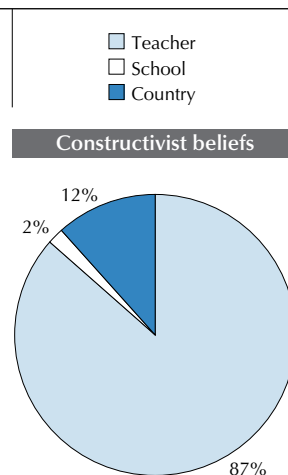
See Annex B for more information about the construction and validation of this index

Figure 6.9 shows the separation of variance into three components for constructivist beliefs. As mentioned previously regarding Figure 6.4, the variance component figures display how much of the variation (in responses to the items that make up the index) is accounted for at each level of the sample. The majority (87%) of the total variance in constructivist beliefs lies in individual differences among teachers. Little variation can be attributed to school or country effects. Variance at the country level is approximately 12% and at the school level only 2%. These results imply that the socialisation that occurs within a school is minimally related to teachers' beliefs. Perhaps these beliefs are formed early in training and are stable. If changes in teachers' beliefs are needed, pre-service training or in-service interventions targeting the individual teacher may be most effective.


■ Figure 6.9 ■

Distribution of variance – constructivist beliefs

Distribution of variance in lower secondary education across the three levels of country, school and teacher.



Source: OECD, TALIS 2013 Database.

StatLink  <http://dx.doi.org/10.1787/888933042067>

BRINGING BELIEFS AND PRACTICES TOGETHER

The relationships between constructivist beliefs and the use of active teaching practices were explored in multiple regression models (see Box 3.5 for a general description of multiple regressions).⁷ Table 6.14 presents the results of the analyses. In the examination of the regression models, a few findings emerged from the three predictors after background variables were controlled for. Across all countries, the practice of students working in small groups was significantly and positively related to constructivist teaching beliefs. In other words, teachers who report using practices that involved students working in small groups frequently or in all their lessons have stronger constructivist beliefs when compared with teachers who report using these types of practices never or occasionally.



Across countries, the reported frequency of having students persist in a project for more than one week is less strongly related to constructivist beliefs than is the practice of students working in small groups. Positive relationships were found in 15 countries, and a negative relationship was found in Korea. Teachers' reported frequency of using practices that require students to use ICT is positively related to their constructivist beliefs in 16 countries. In terms of magnitude of effect across variables, the reported use of practices involving small group work shows the strongest relationship, being moderately linked to constructivist beliefs, on average.

TEACHER PROFESSIONAL PRACTICES: CO-OPERATION AMONG STAFF

Many studies have examined the effect of productive co-operation among teachers as well as among students (DuFour, 2004; DuFour and Burnette, 2002; Murawski and Swanson, 2001; Slavin, 1995, 2009, 2013). DuFour (2004) used the term "professional learning communities" to depict a group of educators working "together to analyse and improve their classroom practice...engaging in an ongoing cycle of questions that promote deep team learning" (p. 9). However, some researchers have claimed that the effectiveness of co-operative practices depends on the structure of the collaboration (Clement and Vandenberghe, 2000). This section looks at the profiles of teachers' professional practices (including teacher collaboration) and how they might relate to teacher characteristics, school leadership and school climate.

Professional collaboration behaviours can be said to be more aligned with progressive forms of professionalism that emphasise an exchange of ideas at a deeper level (OECD, 2009). TALIS data show that these behaviours occur at lower rates when compared with simple exchange and co-ordination between teachers (this includes surface-level behaviours such as exchanging teaching materials with colleagues, having discussions about students or attending conferences together). Thus, it may be useful to consider how these behaviours can be improved within and across countries so that they occur at least as much as the other behaviours.

Table 6.15 and Figure 6.10 present percentages of responses from teachers who report never engaging in the activities captured in the eight items across the two co-operation indices (see Box 6.10 for a description of these indices). As shown in Figure 6.10, teachers are much more likely to report never engaging in activities associated with more complex forms of collaboration (on the right side of the figure) than in activities representing simpler forms of exchange and co-ordination (on the left side of the figure). This is consistent with the findings from TALIS 2008 (Vieluf et al., 2012).

It is striking that on average more than four teachers in ten report never teaching jointly (42%) or never observing other teachers' classes to provide feedback (45%). In particular, more than two-thirds of teachers in Bulgaria, the Netherlands and Spain report never engaging in joint teaching, while more than three-quarters of teachers in Brazil, France, Iceland, Spain and Flanders (Belgium) report never observing other teachers' classes.

Box 6.10. Description of the indices used to measure co-operation

TALIS 2013 used two indices to measure teacher co-operation. To measure exchange and co-ordination for teaching, teachers were asked to respond as to how often (on a six-point scale ranging from never to once a week or more) they do the following in their school:

- Exchange teaching materials with colleagues
- Engage in discussions about the learning development of specific students
- Work with other teachers in my school to ensure common standards in evaluations for assessing student progress
- Attend team conferences

To measure professional collaboration, teachers were asked to respond as to how often (on a six-point scale ranging from never to once a week or more) they do the following in their school:

- Teach jointly as a team in the same class
- Observe other teachers' classes and provide feedback
- Engage in joint activities across different classes and age groups (e.g. projects)
- Take part in collaborative professional learning

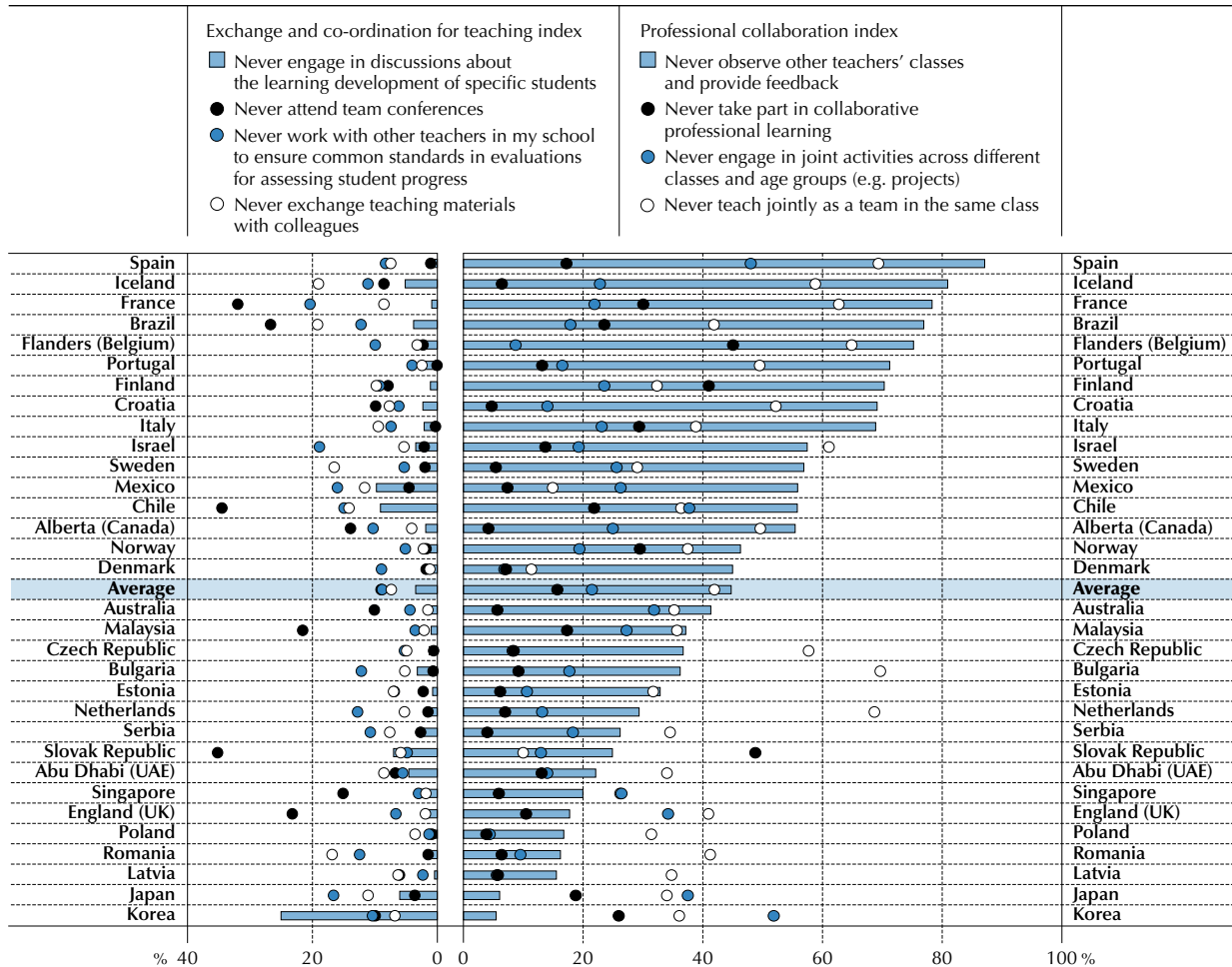
Further details on the indices can be found in Annex B.



■ Figure 6.10 ■

Teacher co-operation

Percentage of lower secondary education teachers who report never doing the following activities



Countries are ranked in descending order, based on the percentage of teachers who report never observing other teachers' classes and providing feedback. Source: OECD, TALIS 2013 Database, Table 6.15.

StatLink <http://dx.doi.org/10.1787/888933042086>

Box 6.11 examines primary school and upper secondary school teachers' participation in co-operative and collaborative activities.

Box 6.11. Primary and upper secondary teachers' engagement in co-operation activities

Tables 6.15.a and 6.15.b show the percentages of teachers in primary (ISCED 1) and upper secondary (ISCED 3) education who report never participating in the activities in the two co-operation indices.

The largest between-country differences in participation in co-operation activities between the levels and countries surveyed appear with primary teachers. A larger proportion of primary school teachers (80%) report teaching jointly with other teachers in the same class, as compared with 68% of lower secondary school teachers. This difference is especially apparent in Flanders (Belgium), where only 35% of lower secondary school teachers report engaging in joint teaching, whereas 69% of primary school teachers do.

The most obvious differences in co-operation activities for the upper secondary level occur with engaging in joint activities across different classes and age groups. It appears that this activity is slightly less common at the upper secondary level, where 30% of teachers report never participating, than it is at the lower secondary level, where only 20% of teachers report that they never participate.



Tables 6.16 and 6.17 report on the results from two multiple regressions to examine the relationships between teacher co-operation (as defined in Box 6.10) and teachers' professional development activities.⁸ Results from these analyses show that in most countries all variables have a positive relationship to both outcomes (although some more than others), indicating that these forms of professional development activities may lead to better professional collaboration of teachers.

Instead of focusing on the magnitude of effects of these variables, the analyses focus on the general trends of findings across countries. In doing so, for both professional collaboration and exchange and co-ordination for teaching, the three professional development activities with the highest number of significant positive relationships with the dependent variables are participation in a network of teachers for professional development, individual or collaborative research on a topic of interest and mentoring and/or peer observation and coaching. Mentoring or coaching is positively related to professional collaboration and exchange and co-ordination for teaching in almost all of the TALIS countries. In contrast, participation in a qualification programme has the least number of significant positive relationships across countries.

Mentoring or coaching and participation in teacher networks are found to be consistently positive predictors across countries for co-operation behaviours, outcomes that are consistent with findings from the first cycle of TALIS (OECD, 2009). These findings suggest that participation in collaborative forms of professional development may help promote further collaborative behaviour in teachers. If policy makers want to promote professional collaboration, these types of professional development activities, which are associated with this outcome, could be the focus of future policy efforts.

Creating a collaborative school climate

As noted previously in this chapter, the relationship between teacher co-operation and school leadership factors can be critical to the school environment and affect teaching and learning (Chong et al., 2010). As reported in Caprara et al. (2003), quality school leadership can lead to teachers exerting more effort toward their school's success (see also Chapter 3).

One important aspect of school leadership that may be an indicator of a collaborative climate in the school is the extent to which principals give other stakeholders opportunities to participate in school decisions. This section examines the relationship between this aspect of school leadership (see Box 6.12 for a description of how this is measured in TALIS) and teacher co-operation within the school (professional collaboration and exchange and co-ordination for teaching; see Box 6.10 for a description of these indices).

Box 6.12. Description of the index of participation among stakeholders

To measure participation among stakeholders, teachers were asked the extent to which they agreed or disagreed with the following statements about their school:

- This school provides staff with opportunities to actively participate in school decisions
- This school provides parents or guardians with opportunities to actively participate in school decisions
- This school provides students with opportunities to actively participate in school decisions
- This school has a culture of shared responsibility for school issues
- There is a collaborative school culture that is characterised by mutual support

Further details on the construction of this index can be found in Annex B.

As shown in Tables 6.18 and 6.19, across all participating countries, the relationship between participation among stakeholders in the school and teacher co-operation is positive. The average correlation across all countries between participation among stakeholders and both of the teacher co-operation index measures is about 0.25. However, teachers in three countries (Chile, Mexico and Abu Dhabi [United Arab Emirates]) report a higher positive relationship (at least 0.35) between at least one form of teacher co-operation and participation among stakeholders in the school. These findings suggest that a school leadership structure that promotes involvement among a wide range of stakeholders in the school may also promote teacher co-operation within the school. In turn, such co-operative activities among teachers may help foster a positive school climate and develop robust classroom environments that could facilitate student learning.



What accounts for the variance in teacher co-operation?

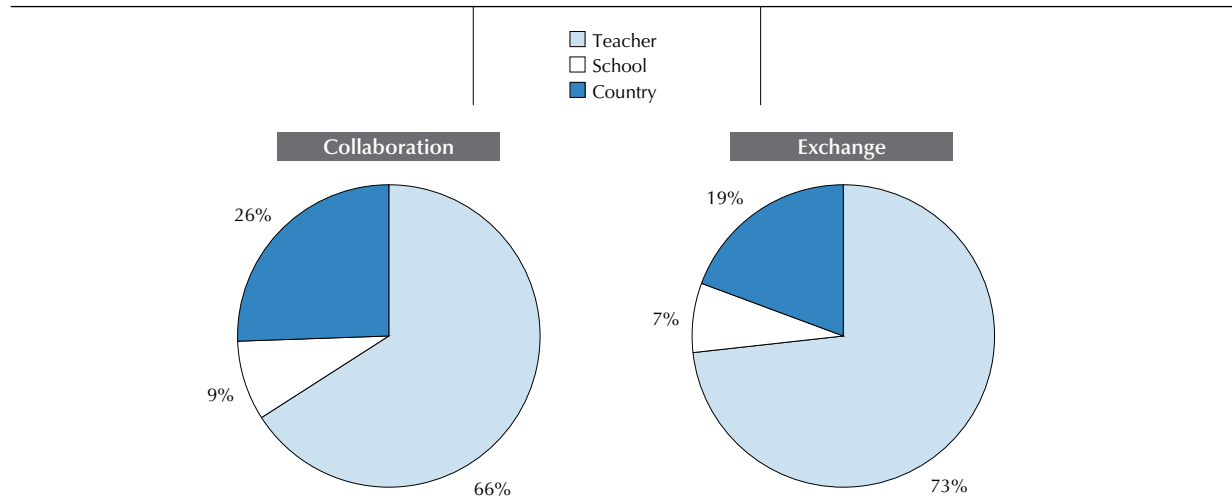
The analyses in this section were performed in the same manner as those looking at teacher practices and teachers' beliefs earlier in the chapter. Namely, the variance was partitioned by country, school and teacher levels for professional collaboration and exchange and co-ordination for teaching.⁹ These analyses can have clear implications for targeting interventions or professional development opportunities at the appropriate level of implementation. If, for example, co-operation is explained best at the school level, professional development may be most effective for school administrators or the teaching faculty as a whole. In contrast, directing such efforts at school administrators or the teaching faculty as a whole may not be as effective if the variability in responses lies within individual teachers, regardless of school in which they work.

Figure 6.11 provides the separation of variance into three components for professional collaboration and exchange and co-ordination for teaching. The variance at the school level is approximately 8% across both variables. The consistent finding is that the majority of the variance for both constructs remains at the individual level (i.e. with the teacher). Teachers differ from each other in their co-operation responses even within the same school. Therefore, if there is a need to increase co-operative behaviours, the focus of change and training should be on the teacher, as an individual, and not on the school in which the teacher works. However, teacher co-operation appears to have a higher portion of variance explained at the country level compared with other variables examined in this chapter. Country-level variance for professional collaboration and exchange and co-ordination for teaching is 26% and 19%, respectively. This finding suggests that the propensity for teachers to exhibit these co-operation behaviours may be at least partly cultural.

■ Figure 6.11 ■

Distribution of variance – teacher co-operation indices: Professional collaboration and exchange and co-ordination

Distribution of variance in lower secondary education across the three levels of country, school and teacher



Source: OECD, TALIS 2013 Database.
StatLink <http://dx.doi.org/10.1787/888933042105>

CLASSROOM ENVIRONMENT

There is evidence that classroom climate can influence student learning and socio-emotional behaviours (Brophy and Good, 1986; Brown et al., 2010). For example, researchers have found that a positive classroom climate is associated with both cognitive and motivational outcomes, including improved academic performance, motivation, engagement, school satisfaction, self-esteem and fewer disruptive behaviours (Baker, 1999; Patrick, Kaplan and Ryan, 2011; Reyes et al., 2012). Indeed, disruptive behaviours result in less time for teaching and ultimately interfere with student learning (Guardino and Fullerton, 2010; Martella, Nelson and Marchand-Martella, 2003). This chapter uses classroom disciplinary climate measures as indicators of classroom climate (see Box 6.4 for a description of the classroom climate index).

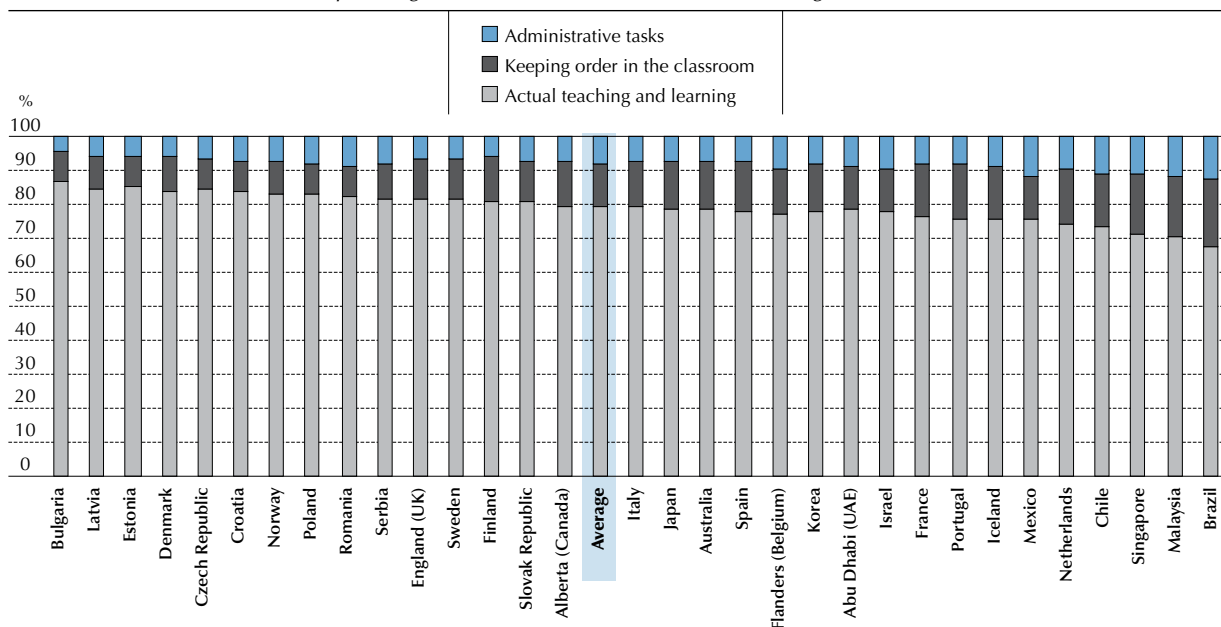
Country differences in classroom environment

This section describes how teachers typically spend their class time. Figure 6.12 displays the distribution of class time teachers report spending on three types of activities: Teaching and learning activities, administrative tasks and keeping order (or behaviour management of individual students or the entire class). Across countries, teachers report spending the majority of their time (79%) on teaching and learning activities (Table 6.20). However, proportions vary, from 87% in Bulgaria to 67% in Brazil.

■ Figure 6.12 ■

Distribution of class time during an average lesson

Average proportion of time lower secondary education teachers report spending on each of these activities in an average lesson¹



1. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.

Countries are ranked in descending order, based on the average proportion of time teachers in lower secondary education report spending on actual teaching and learning.

Source: OECD, TALIS 2013 Database, Table 6.20.

StatLink <http://dx.doi.org/10.1787/888933042124>

Keeping order in the classroom, generally the biggest concern for new teachers (Jensen et al., 2012; Woolfolk, 2010), occupies an average of 13% of all teachers' time across countries. Reports between countries vary from 8% in Poland to 20% in Brazil. Administrative tasks require the least amount of time from teachers (8%) compared with the other two broad categories. Teachers in Bulgaria and Estonia report spending 5% of their class time on administrative tasks, while teachers in Brazil, Malaysia and Mexico report that 12% of their class time was devoted to such tasks. There is no doubt that teaching and learning should make up the major component of teachers' class time each day. TALIS results corroborate this, as teachers report spending an average of 79% of their class time on actual teaching and learning. However, teachers and students could further benefit from developing ways that reduce the amount of class time spent on administrative tasks and on keeping order so that they devote more time to teaching and learning. Box 6.13 presents the distribution of class time reported by primary and upper secondary teacher in those countries with available data.

Looking at the TALIS 2013 data further, variations can be seen within countries as to how teachers are reporting spending their class time. Figure 6.13 displays the distributions of responses for the 25th to the 75th percentiles of teachers within each country regarding the proportion of class time they report spending on teaching and learning. Short bars in the figure, such as those for Croatia, Norway, Poland, Romania and Serbia, suggest relative uniformity in how teachers report spending their class time on teaching and learning. Longer bars, such as those for Brazil, Chile, Japan and Singapore, suggest more variation in the proportion of class time teachers report spending on teaching and learning.



Box 6.13. Distribution of class time for primary and upper secondary teachers

Tables 6.20.a and 6.20.b look at the distribution of class time activities reported by primary (ISCED 1) and upper secondary (ISCED 3) teachers.

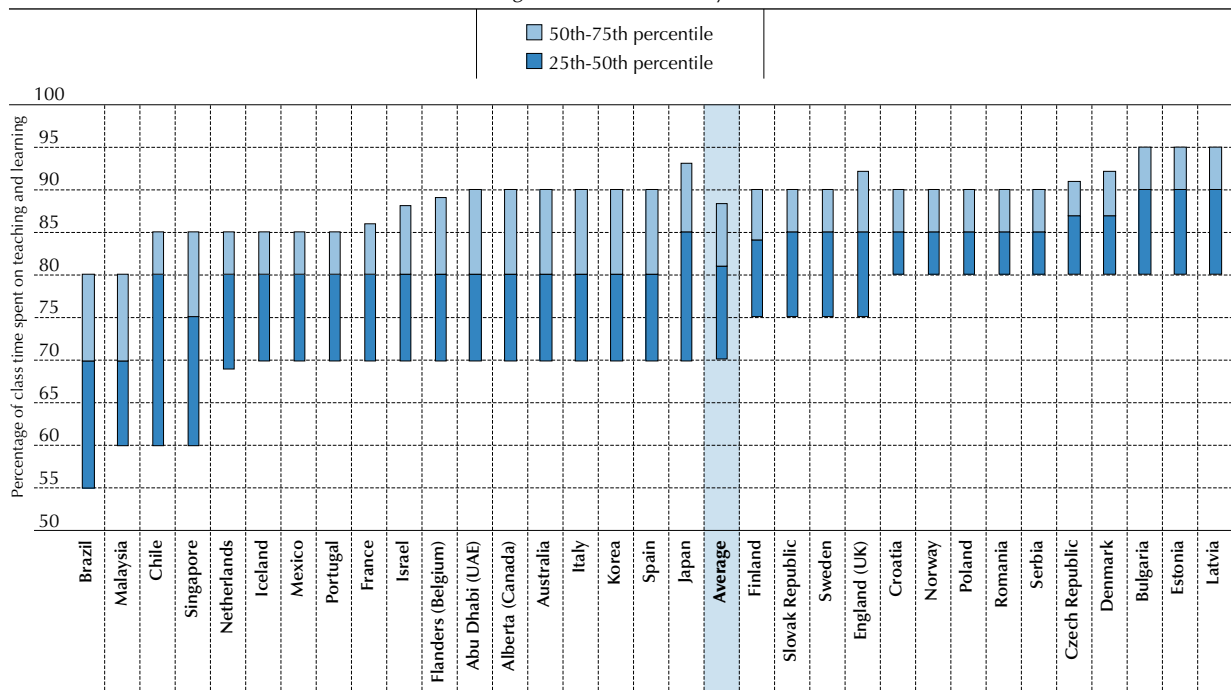
Across participating countries, primary school teachers report spending approximately the same proportions of time for each activity. However, primary school teachers in Denmark and Norway report spending more class time keeping order in the classroom than do their lower secondary school colleagues (14% vs. 10% in Denmark and 12% vs. 9% in Norway).

In contrast, across the countries surveyed, teachers in upper secondary schools seem to spend less class time keeping order (9%) than do their lower secondary school colleagues (13%). These findings are not surprising considering the age of students and their experience in school at each level.

■ Figure 6.13 ■

Percentiles of time spent on teaching and learning

Distribution within each country of the percentage of class time teachers report spending on teaching and learning in lower secondary education¹



1. The chart shows the percentage of time spent on actual teaching and learning for the second and the third quartile (middle) of the distribution within each country. For example, in Brazil, 25% of teachers report spending between 55% and 70% of the class time on teaching and learning, and another quarter of the Brazilian teachers report spending between 70% to 80% of the class time on teaching and learning.

Countries are ranked in ascending order, based on the 25th percentile of the time teachers report spending on actual teaching and learning in lower secondary education.

Source: OECD, TALIS 2013 Database.

StatLink <http://dx.doi.org/10.1787/888933042143>

Looking across the countries listed in Figure 6.13, one can see that in a majority of participating countries, half of the teachers report spending 80% or more of their class time on teaching and learning (this is the case for countries where the bar representing the 50th-75th percentile of teachers is entirely contained at 80% or above). These teachers could be considered to be making effective use of lesson time, given that some class time can be expected to be spent on administrative tasks and keeping order in the classroom. As also shown in Figure 6.13, in about half of the participating countries, 25% of teachers report spending at least 30% of their time on classroom disruptions and administrative tasks

(this is the case for countries where the lower part of the bar representing the 25th-50th percentile of teachers reaches 70% or less). Most notably, in Brazil, Chile, Malaysia and Singapore, one in four teachers reports spending at least 40% of their class time on classroom disruptions and administrative tasks. This indicates that teachers in several countries could benefit from interventions that facilitate more effective use of class time. Aims of such interventions would be to maximise the class-time learning opportunities for all students.

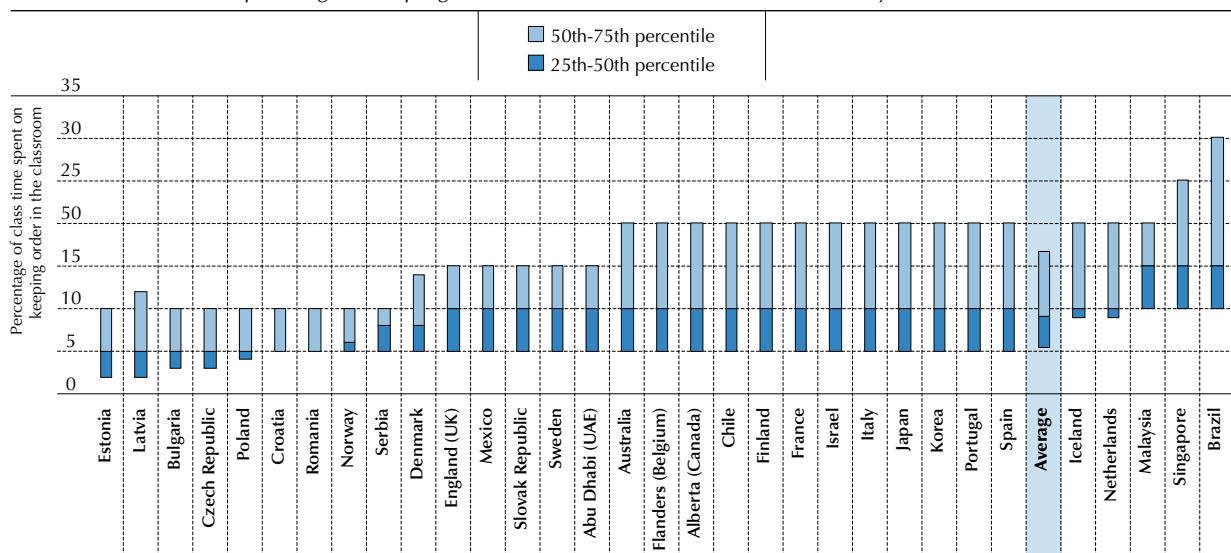
Important variations can also be seen within countries regarding the proportion of time teachers report spending on keeping order in the classroom (Figure 6.14). Similar to Figure 6.13, Figure 6.14 displays the distributions of responses for the 25th to the 75th percentiles of teachers within each country regarding the proportion of class time they report spending on keeping order in the classroom. As shown in the figure, there is more variation in teachers' responses in a country such as Brazil than in countries such as Croatia, Norway, Romania or Serbia.

Moreover, Figure 6.14 shows that half of the teachers in Brazil, Malaysia and Singapore report spending 15% or more of their class time on keeping order in the classroom. In contrast, half of the teachers in Bulgaria, Croatia, the Czech Republic, Estonia, Latvia, Poland and Romania report spending 5% or less of their class time on keeping order in the classroom.

■ Figure 6.14 ■

Percentiles of time spent on keeping order in the classroom

Distribution within each country of the percentage of class time teachers report spending on keeping order in the classroom in lower secondary education¹



1. The chart shows the percentage of time spent on keeping order in the classroom for the second and the third quartile (middle) of the distribution within each country. For example, in Estonia, 25% of teachers report spending between 2% to 5% of the class time on keeping order in the classroom and another quarter of teachers report spending between 5% to 10% of the class time on the same task. In Croatia and Romania, 25th-50th percentile is not showing because there is no variation between them, both are at 5% of the class time spent on keeping order in the classroom.

Countries are ranked in ascending order, based on the 25th percentile of the time teachers report spending on keeping order in the classroom in lower secondary education.

Source: OECD, TALIS 2013 Database.


StatLink  <http://dx.doi.org/10.1787/888933042162>

Table 6.21 displays descriptive information for each country for classroom disciplinary climate. As the table shows, a majority of teachers in all countries report that students do contribute to a positive environment (average agreement of 71%). Nearly a third of teachers on average report losing quite a lot of time to behavioural problems or waiting for students to settle down. Just more than one in four teachers (26%) reports that there is a lot of disruptive noise in their classrooms. These issues seem particularly problematic for teachers in Brazil, where more than half of the teachers agree that these are issues they deal with in their classroom.

Table 6.22 shows the correlations between the proportion of time reported to be spent on teaching and learning and classroom disciplinary climate (see Box 6.4). Findings suggest a moderate relationship between these variables (the average correlation across countries is high at 0.48). In countries such as Australia, Finland, France, Iceland, Spain and



Sweden, there is a stronger link between time on teaching and learning and the classroom environment. However, this relationship is weaker in countries such as Chile, Japan, Korea and Mexico. In such countries, future work could explore what might explain the time teachers spend on teaching and learning as opposed to managing students.

On average, the correlation between classroom disciplinary climate and time spent on teaching and learning was nearly 0.5. This positive relationship supports the idea that a better classroom climate is associated with more time on teaching and learning for the teacher. It also indicates that there is much left to explain regarding the influences of time spent on teaching and learning after considering classroom climate.

Time spent on learning and teaching tasks is a fundamental and essential component of effective educational environments and should also lead to better classroom environments. Targeted efforts to assist teachers with increasing their skills to effectively manage the classroom to lower irrelevant distractions and noise should promote more time for learning tasks. Ultimately, this should lead to increased learning opportunities for students, regardless of the country in which they reside. This aligns with results in Chapter 4 showing that one of the most frequently reported needs for professional development by teachers on average was for professional development around managing student behaviour (see Table 4.12).

What accounts for the variance in classroom climate?

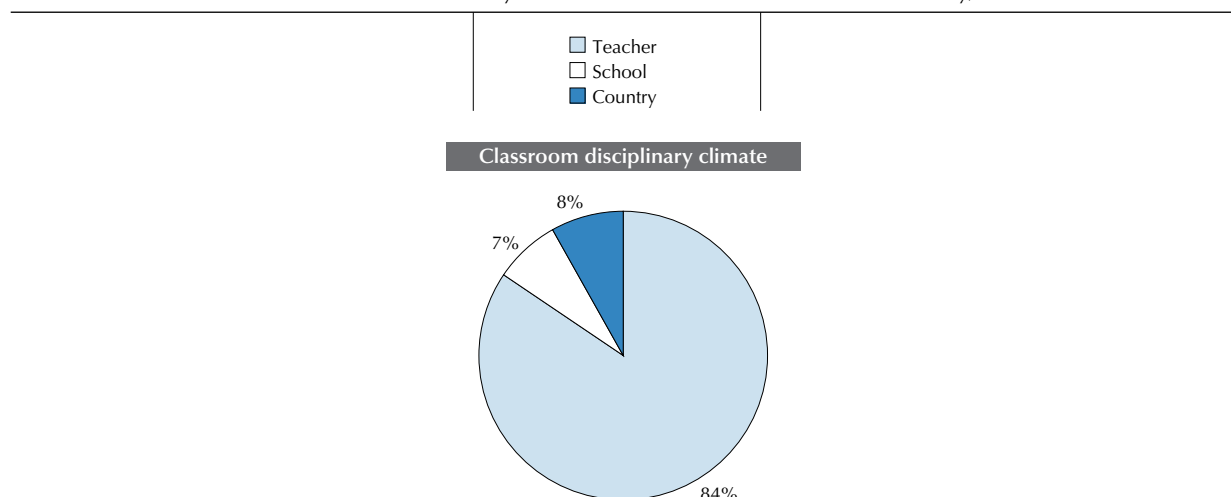
To gain more information about the constructs of classroom disciplinary climate within schools, the variance was again portioned by three levels for the index of classroom disciplinary climate, as explained earlier in the chapter. The interest was specifically focused on understanding the extent to which this variable was a school- or country-level factor rather than a teacher-level factor to gain insight regarding teachers' responses to the classroom climate indices. That is, are the responses explained by factors related to school or country or by the uniqueness of the individual teacher? Knowing this allows for future interventions to target the level where change needs to occur to influence climate.

Figure 6.15 shows the separation of the variance into three components for classroom disciplinary climate. As mentioned earlier, the variance component figures display how much of the variation in responses to these items is accounted for at each level of the sample.¹⁰ The variance accounted for at the school level (7%) and at the country level (8%) is minimal. These proportions indicate that the majority of variance (84%) in classroom disciplinary climate responses lies with the individual teacher. That is, there is little difference in teachers' responses between schools or countries, yet there is much variability within schools and countries that can be explored. A classroom that is well controlled and orderly is basic to instruction. Indeed, it is the teacher who is in control of this environment, and making sure that teachers have the tools to manage the environment depends on the teacher. The disciplinary climate depends less on the socialisation of the school or the country within which a teacher resides than on the practices put in place in the classroom itself.


■ Figure 6.15 ■

Distribution of variance – classroom discipline

Distribution of variance in lower secondary education across the three levels of country, school and teacher



Source: OECD, TALIS 2013 Database.

StatLink  <http://dx.doi.org/10.1787/888933042181>



SUMMARY AND IMPLICATIONS FOR POLICY AND PRACTICE

This chapter presented information and analysis on teachers' reported teaching and professional practices, beliefs about the nature of teaching and learning, professional development, professional collaborative practices, working time, school leadership factors and the classroom environment in which teachers work. With accountability increasing in many countries, one can argue that teachers are in the spotlight more than ever. However, increasing accountability provides a unique opportunity for teachers, as many policy makers and educators are eager to understand the conditions under which their teachers work and the barriers to teachers' quest to educate the next generation of active citizens. Future research work should focus on individual factors, while policy work should include individual factors and, equally importantly, factors at the school and country level.

Provide further support (either through professional development or initial teacher education) to encourage teachers' use of active teaching practices

Educational research literature is replete with evidence showing the effectiveness of such teaching practices as well as the need to effectively enact these practices to engender learning (Johnson and Johnson, 2009; Mayer, 2014; Woolfolk, 2010). For example, nearly three decades of research in media and technology has shown that technology, in and of itself, will not facilitate learning. However, the affordances of technologies and multimedia can enhance learning when enacted with theoretically and empirically sound pedagogical strategies (Clark, 1983, 1994; Mayer, 2003, 2014). Indeed, Kozma (1994, p. 1) proclaimed a need to better understand "media and the methods that employ them as they interact with the cognitive and social processes by which knowledge is constructed". Research since then has focused more on pedagogical strategies for setting up a computer-based learning environment. It is not surprising that teachers with pedagogical knowledge of their topics are well positioned to inculcate these three teaching practices, especially the use of information technologies or computing in their classrooms. It is perhaps more surprising that in most countries, TALIS data indicate that class size does not seem to have a strong relationship with teachers' reported use of practices involving small group activities, project-based tasks or ICT. Rather, the composition of students in a class seems to be a more important factor in teachers' choices of teaching practices.

Although many factors may determine teachers' use of active teaching practices, teachers are encouraged to develop pedagogical knowledge in the subjects they teach, as possessing such pedagogical knowledge may free them to explore the use of active teaching practices. Teachers who are struggling with pedagogical knowledge may find it challenging to incorporate teaching strategies that require additional time and resources to implement.

Professional development is one way to deepen teachers' knowledge and interest in using these three contemporary teaching practices. Professional development includes participation in workshops, conferences, observation, qualification programmes, networking, individual and collaborative research and mentoring. Indeed, TALIS results show that across many countries, teachers who engage in some of these types of professional development activities are more likely to report using at least one of these three teaching practices. Policy makers and educators are encouraged to provide teachers with professional development opportunities and encourage their teachers to develop pedagogical knowledge on the subject as well as to effectively deploy these teaching practices in their classrooms. In addition, teachers are encouraged to develop professional practices that will deepen their knowledge in the use of active teaching practices.

Promote teacher co-operation and a positive school climate

Ample research evidence shows that a powerful movement of change takes place when teachers co-operate and work together, resulting in effective schools, classrooms and student learning (DuFour, 2004). Results from TALIS align with the general finding in the literature. Specifically, TALIS data indicate that teachers collaborated more with their colleagues especially when professional development activities afforded them the opportunity to network with other teachers and provide mentoring and coaching. Hence, policy makers and school leaders can support professional development activities where teachers are given more opportunities to mentor one another and develop a strong network with one another. In addition, teachers are also encouraged to seek networking and mentoring opportunities to enhance co-operation, build trust and promote a positive school climate. As explained in Chapter 7, it is possible for such strategic mentoring programmes to result in improved teacher job satisfaction and self-efficacy.

School climate is another major factor that influences teaching and learning (Chong et al., 2010; Collie, Shapka and Perry, 2012). Research has shown that effective school leadership engenders both self-efficacy and collective teacher efficacy geared toward creating effective schools and classrooms (Barouch-Gilbert, Adesope and Schroeder, 2013; Caprara et al., 2003). Results from TALIS align with findings in extant literature. Indeed, TALIS results show a positive moderate relationship between school leadership that promotes participation among a wide variety of stakeholders in



the school and teacher co-operation. This indicates that when the school climate is good, teachers are more willing to co-operate with one another. Also, teacher co-operation can promote a positive school climate. When the school climate is good and teachers work together productively, these may translate into robust classroom environments that facilitate student learning.

Provide development opportunities or feedback to improve teachers' classroom-management skills

A positive classroom disciplinary climate results in a higher proportions of class time spent on actual teaching rather than on attending to undesirable behaviours (Brown et al., 2010; Reyes et al., 2012). Results from TALIS analyses are consistent with general findings in classroom climate research. Significant practical and policy implications are associated with these findings. Educators, school leaders and policy makers can improve classroom climate by providing teachers with interventions or professional development opportunities that focus on more effective use of lesson time. In addition, teachers should seek opportunities to promote healthy positive classroom climate. For example, teachers may build a strong relationship and trust with parents and children, as such an approach has been found to be effective for promoting positive classroom climate and minimising undesirable behaviours in the classroom (El Nokali, Bachman and Votruba-Drzal, 2010). The overarching goal would be to maximise lesson-time learning opportunities for all students.

Notes

1. The figure was adapted from OECD, 2009, Chapter 4.
2. For distribution of variance in each country, see Table 6.23.Web.
3. Note that references to teachers as humanities or mathematics and science teachers throughout this chapter are based on the target class that teachers were asked to respond about in the TALIS questionnaire. See Annex B for the definition of humanities teachers used in TALIS.
4. For the purpose of the analyses, the items from the teacher questionnaire pertaining to the student composition of the target class were collapsed from five to two categories. The collapsing of the categories was determined by reviewing the distribution of responses and selecting a point where both representation of the responses and sufficient variability to be meaningful were maintained. This strategy was the same as followed in Chapter 2. Responses were divided into two categories, one for up to 10% of students and one for greater than 10% of students in the target class. See Annex B for more information.
5. This includes hours reported by teachers working full time and part time.
6. Teachers were asked to report the number of 60-minute hours they spent during their most recent complete calendar week on teaching, planning lessons, marking, collaborating with other teachers, participating in staff meetings and other tasks related to their work at this particular school. In this total, they were requested to include any tasks that took place during weekends, evenings or other off-classroom hours.
7. Multiple regression analysis was performed using the constructivist beliefs index scale as the dependent variable and the following three teaching practices as predictors: use of practices involving small groups, projects that take more than a week to complete and use of ICT. The background variables controlled for included gender, total years working as a teacher, level of education and type of target class taught. See Annex B for more information about these analyses.
8. The variables included (a) participation in courses and workshops, (b) participation in education conferences, (c) observation visits to other schools, (d) participation in qualification programmes, (e) participation in a network of teachers for professional development, (f) individual or collaborative research on a topic of interest, and (g) mentoring and/or peer observation and coaching. The analyses controlled for teacher gender, years of experience, highest level of education and subject taught in the target class. See Annex B for more details about the analyses performed.
9. For distribution of variance in each country, see Table 6.23.Web.
10. For the distribution of variance in each country, see Table 6.23.Web.

A note regarding Israel

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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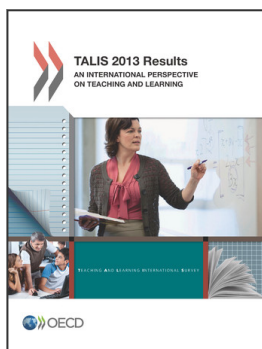
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