4

Equity and teacher professionalism

This chapter examines differences in teacher professionalism support within an individual country. The analyses focus on differences between high-needs schools – that is, schools where at least 30% of student body belongs to one of the categories: second-language learners, students with special needs, or students that are socio-economically disadvantaged – as compared to low-needs schools with less than 11% of the student body in one of the three high-needs categories. It explores teacher professionalism support patterns within a given country/economy, providing policy makers with the information necessary to target interventions.

Highlights

- There are differences in the level of teacher professionalism across high- (with at least 30% of the student body in one of the three high-needs categories: second-language learners, students with special needs, socio-economically disadvantaged students) and low-needs schools (with less than 11% of the student body in one of the high-needs categories).
- Across all high-needs groups (socio-economically disadvantaged, special-needs, or second-language), the greatest amount of within-country diversity in teacher support is found in the autonomy domain.
- Across all high-needs groups, the five most equitable economies (where average scores are higher for teachers in high-needs schools in at least one teacher professionalism domain) are: England (United Kingdom), Korea, Latvia, Spain, and Sweden.
- The positive association between teacher professionalism practices and teacher job satisfaction is largely amplified in high-needs schools.

INTRODUCTION

While Chapters 2 and 3 focused on comparisons between systems, providing important information on global trends and potential areas for national policy application, this chapter explores patterns of teacher professionalism support within a given system, providing policy makers with the information necessary to target interventions.

Having high-quality, well-trained and supported teachers is essential for student well-being and achievement. However, the support teachers receive in high-needs schools often lags behind that of their peers who teach in relatively lower-needs schools (see Darling-Hammond et al., 2009; Johnson et al., 2004). In this chapter, high-needs schools are those schools which self-identify as having at least 30% of their student body in one of three high-needs categories: second-language learners, student with special needs or students that are socio-economically disadvantaged (see Box 4.1 for more information). The difference between the amount of support provided to teachers in high-needs schools and to teachers in low-needs schools (less than 11% of their student body in one of the three high-needs categories) is referred to as the teacher professionalism support gap.

Teacher professionalism support gaps can be identified in each teacher professionalism domain: (1) *professional knowledge base* – the presence of teaching credentials and support for continued professional development; (2) *autonomy* – the decision-making power teachers have over aspects of their teaching; and (3) *peer networks* – the role teachers play in regulating their own standards, including measures of peer socialisation, guidance and feedback. Teacher support gaps in any of the professionalism domains may help explain the discrepancies in teacher quality common in high-needs schools in many countries (Imazeki and Goe, 2009; Jacob, Vidyarthi and Carroll, 2012; Kertesi and Kézdi, 2011; Mulkeen, 2006; OECD, 2005). Addressing the teacher professionalism support gap, therefore, is an important step in ensuring that students' in high-needs schools have access to high-quality teachers. In addition to providing the tools necessary to deal with the diverse student body found in high-needs schools, teacher support, such as providing comprehensive induction programmes

(Smith and Ingersoll, 2004), or providing teachers with greater decision-making authority (Guarino, Sanibañez and Daley, 2006), has been shown to decrease teacher attrition, essential to the stability of high-needs schools that traditionally are faced with greater teacher turnover.

To remedy the teacher professionalism support gap, it is important to move beyond equality and towards equity. While equality indicates that all teachers have access to the same amount of support, equity suggests that all teachers have access to the supports they need to successfully complete their work. In high-needs schools, equity comes when teachers have greater access to practices that support their teacher professionalism. Essentially, with the diversity in socio-economic background and academic ability present in high-needs schools, teachers must take on multiple roles, moving well beyond traditional teaching roles, and be equipped to fully differentiate their instruction while diversifying their instructional approaches. This requires a teacher professionalism support advantage where teachers in high-needs schools have greater access to the supports necessary to thoroughly meet this challenging task.

In exploring the teacher professionalism support gap and surrounding equity concerns, this chapter focuses on teachers in lower secondary schools (ISCED 2) and addresses two important questions. First, how do each country's teacher professionalism support gaps (i.e. knowledge, autonomy, and peer networks) differ by high-needs category (second language, special needs, and socio-economically disadvantaged)? Second, how does the relationship between teacher professionalism support and teacher's satisfaction with their current work environment differ between teachers that work in a high-needs school and those that work in relatively low-needs schools? This chapter starts by exploring high needs categories, leading to a discussion of teacher professionalism support gaps in the complete sample of 2013 TALIS participants, as well as by individual countries. Following the approach of Chapter 2, triangle graphs are then used to identify cross-national equity patterns, distinguishing between those countries that provide more equitable teacher support, less equitable support, or replace one type of teacher professionalism practice with another. The association between each teacher professionalism domain and teacher satisfaction with their current work environment is addressed in the next section. Moving one step beyond the multilevel analysis provided in Chapter 3, this section provides estimates for teachers working in high and low socio-economically disadvantaged schools for each country and economy.[1] The concluding summary provides policy-relevant suggestions for countries looking to bolster their teacher workforce and, ultimately, benefit students in high-needs schools.

IDENTIFYING HIGH-NEEDS SCHOOLS

To examine differences between teacher professionalism support practices across schools, three high-needs student groups are used: second-language learners, students with special needs and students that are socio-economically disadvantaged (see Box 4.1). As detailed in Table 4.1, these three student groups are then divided based on the concentration of students in a given school into high, medium, and low categories.

Table 4.1 Identifying high-needs schools

School categorisation	Low-needs	Medium-needs	High-needs
Percentage of students in high-needs group	Less than 11% of students	11 to 30% of students	Greater than 30% of students

Source: Authors' categorisation from 2013 TALIS principal questionnaire.

Box 4.1 **Defining high-needs student groups**

High-needs student groups are classified using responses from the 2013 TALIS Principal Questionnaire. Question 15 asks principals to identify the broad percentage of students in their school that have the following characteristics:

- Students whose first language is different from the language of instruction or from a dialect of this/these language(s).
- Students with special needs.
- Students from socio-economically disadvantaged homes.

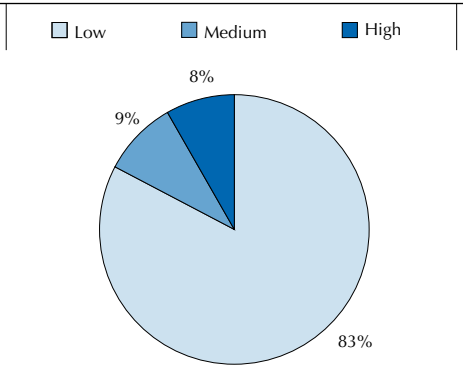
Potential response categories included none, 1% to 10%, 11% to 30%, 31% to 60%, and more than 60%. As few schools have more than 60% of students in any of the high-needs student groups, the top two categories (31% to 60% and more than 60%) were combined into a high-needs category. A high socio-economically disadvantaged school, for example, is a school with more than 30% of its students coming from socio-economically disadvantaged homes.

Although some past research (for example, see Alberta Education, 2014) has classified a high concentration of students with special needs or second-language students as anything greater than 1 in 10 students, this study uses the 30% threshold for all high-needs student groups to allow for easy comparison and interpretation.

Figure 4.1 shows the breakdown of the complete teacher sample of the Teaching and Learning International Survey (TALIS) countries/economies by second-language student concentration. It indicates that approximately eight in ten teachers in the total sample teach in a school where less than 11% of students are second-language students. Approximately one in ten teachers teach in medium second-language concentration schools with a roughly equal amount in high concentration schools.

Figure 4.1

Percentage of teachers, by second-language student concentration

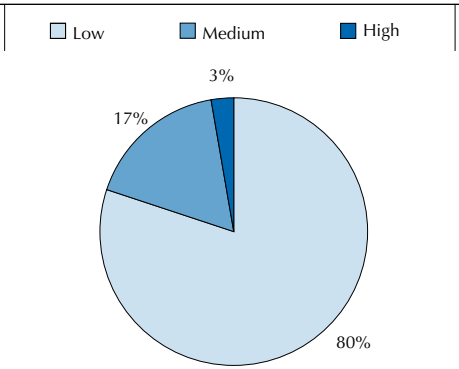


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Figure 4.2 illustrates that a very small portion (3%) of teachers teach in schools with a high concentration of students with special needs. Similar to the overall breakdown for second language, eight in ten teachers teach in a school in the low concentration category.

■ Figure 4.2 ■

Percentage of teachers, by concentration of students with special needs

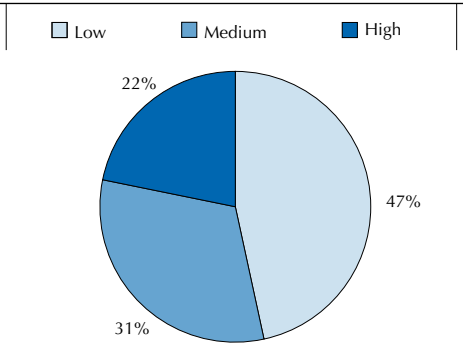


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Traditionally, high-needs schools are associated with the socio-economic status of their students. Figure 4.3 illustrates the vast differences between the concentration of socio economically disadvantaged students and the other high-needs categories. The figure shows that just under half of teachers teach in a school with a low concentration of socio economically disadvantaged students. In contrast, approximately two in ten teachers work at a school with a high concentration of socio-economically disadvantaged students. In comparison with the other high-needs categories, a greater percentage of teachers work in high socio-economically disadvantaged schools (22%) than in medium or high special-needs schools (20% in total) or second-language schools (17% in total). As teachers in each of the high concentration categories face unique challenges and opportunities requiring additional support and training, teachers in schools that have large concentrations of all three student groups face an especially demanding task. Following the 2014 OECD report covering initial results from 2013 TALIS (OECD, 2014b), these most challenging schools include high socio-economically disadvantaged student concentrations, as well as medium or high concentrations of second-language students and students with special needs. In the complete sample of TALIS countries/economies, approximately 2.5% of teachers work in the most challenging schools. In the remainder of this chapter, the different high-needs groups will be considered alternatively to help identify which sub-population should be targeted for the relevant teacher professionalism support policy.

Figure 4.3

Percentage of teachers, by socio-economically disadvantaged student concentration



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

TEACHER PROFESSIONALISM DOMAINS, BY HIGH-NEEDS CATEGORIES

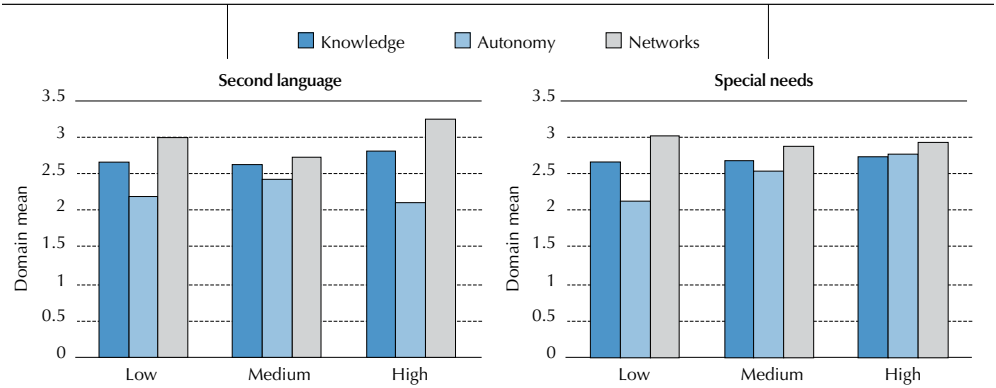
Teacher professionalism support practices may vary across schools with different student compositions as teachers and schools attempt to meet their specific student needs. Figure 4.4 shows the mean value of each teacher professionalism domain by second-language and special-needs categories, respectively. In both graphs it is apparent that the combination of teacher professionalism support practices differs by concentration category (low, medium, high), with the highest average score consistently found in the peer networks domain. High-needs second-language schools seem to especially prefer teacher professionalism practices associated with peer networks, while greater autonomy is present in high-needs special-needs schools. The high level of autonomy in high and middle special-needs schools is particularly interesting as these schools are the only subgroups across all categories to have a value on the autonomy scale of at least 2.5. This suggests that teachers in middle and high special-needs schools have greater decision-making authority on aspects of their teaching. With proper support this allows teachers to adjust curriculum and instruction to meet the special needs of students in their classroom. Alternatively, the high score could indicate that standards and curriculum for students with special needs, and hence teachers of students with special needs, is less developed, or that students with special needs as a group are exempt from following the typically mandated guidelines.

Unlike second-language and special-needs categories, an obvious trend is present across socio-economically disadvantaged categories (see Figure 4.5). As the percentage of socio-economically disadvantaged students increases, there is a decrease in teacher professionalism support across all domains. In all domains, the greater support for teachers is found in relatively low-needs schools, while the least amount of support is found in high-needs schools with a high concentration of socio-economically disadvantaged students. This pattern is starkly illustrated in the autonomy domain, where the average autonomy score for teachers in the low socio-economically disadvantaged category is over 0.5 point higher than those in high socio-economically disadvantaged schools. In this latter category, teachers have less decision-making authority, with access to less than two in five of the best practices associated with autonomy. Overall, this indicates that teachers in the most socio-economically disadvantaged schools have access to the least teacher professionalism support. Given the challenges and low student achievement in the most socio-economically disadvantaged schools, continuing to

underinvest in teachers in these schools can exasperate the already large achievement gaps present in many countries.

▪ Figure 4.4 ▪

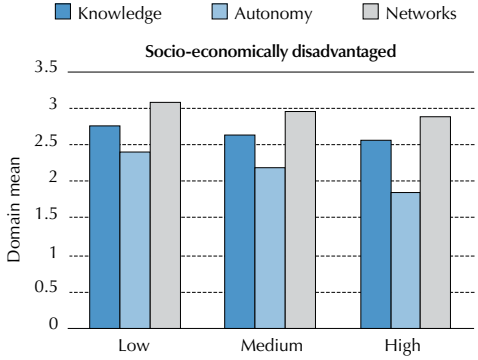
Domain means, by second-language and special-needs concentration



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

▪ Figure 4.5 ▪

Domain means, by socio-economically disadvantaged concentration



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

TEACHER PROFESSIONALISM SUPPORT GAP

Cultural and historical differences between countries may lead some countries to a preference for one teacher professionalism domain (knowledge, autonomy, peer networks) or one special-needs group (second-language, special-needs, socio-economically disadvantaged) over another. Looking at teacher professionalism support gaps (see Box 4.2) within a country can help identify inequitable patterns of teacher support, given the country's unique history and culture. Large support gaps indicate that teachers in high-needs schools are receiving substantially less teacher professionalism support than their peers in relatively lower-needs schools. Support advantages indicate that a more equitable

pattern is present with teachers in high-needs schools receiving more support, providing them with the additional resources necessary given their high-needs student population. In comparing teachers in high and low second-language schools, a significant teacher professionalism advantage is present, with the average scores on the knowledge and peer networks domains for teachers in schools with a high concentration of second-language learners greater than their peers in lower-needs schools (see Annex C). Across the TALIS participants, each teacher professionalism domain has approximately the same number of systems exhibiting a significant gap as a significant advantage – knowledge (4 gaps, 3 advantages), autonomy (11 gaps, 10 advantages), and peer networks (6 gaps, 9 advantages) – indicating that there is no universal pattern across all systems. The largest fluctuation across countries, with a high number of gaps and advantages, is found in the autonomy domain.[2] In the Czech Republic, teachers in high second-language schools had an average autonomy score ($\bar{x}$ = 1.10) almost 2.5 points below their peers in low second-language schools ($\bar{x}$ = 3.52), indicating that teachers in high second-language schools have access to approximately one in five best autonomy practices, while those in low second-language schools have access to between three and four best practices for autonomy. Gaps of at least one best practice were also present in Brazil, Finland, the Russian Federation and Serbia. The largest autonomy advantage is found in Chile, where teachers in high second-language schools score, on average, 1.81 points above teachers in low second-language schools. Schools in Abu Dhabi, United Arab Emirates and Latvia also provide at least one more autonomy best practice to teachers in high second-language schools.

Box 4.2 **Calculating the teacher professionalism support gap**

To calculate the teacher professionalism support gap, the difference in domain score between high and low concentration schools is calculated ($\bar{x}_{high} - \bar{x}_{low}$). Negative scores indicate a gap is present, with teachers in higher-needs schools less likely to have access to teacher professionalism practices. A positive score indicates an advantage is present, with teachers in higher-needs schools more likely to have access to teacher professionalism practices. Annexes C, D and E provide the teacher professionalism support gap by each high-needs student group, with dark blue identifying a significant gap is present and dark grey indicating a significant advantage is present.

In comparing high and low special-needs schools, the complete sample indicates that schools with a high concentration of students with special needs provide teachers with greater autonomy, knowledge-base support and peer-networks support than their peers in low special-needs schools (see Annex D).[3] Similar to the differences between teachers in high and low second-language schools, when exploring special-needs schools across TALIS participants there are an approximately equal number of systems with significant gaps and significant advantages: knowledge (2 gaps, 1 advantage), autonomy (8 gaps, 9 advantages), peer networks (3 gaps, 4 advantages). The presence of few gaps or advantages in the knowledge base and peer networks scales suggests that, in general, the support for teachers' professional knowledge and peer networks is similar for high and low special-needs schools in most systems. In the autonomy domain, the largest gaps are found in the Netherlands and the Russian Federation, where differences between high and low special-needs schools are at least 0.8 point. Large autonomy advantages of over one point are found in Alberta, Canada; England, United Kingdom; Korea; New Zealand; and Romania.

As hinted at in Figure 4.5 (see above), teachers in high socio-economically disadvantaged schools receive less support than teachers in any other high-needs context. Additionally, teachers in high socio-economically disadvantaged schools receive significantly less support in all three teacher professionalism domains, compared to their peers in relatively low socio-economically disadvantaged schools (see Annex E). The greatest fluctuation in support is once again found in the autonomy domain, where an autonomy gap is present in more than a third of TALIS participants. However, unlike the exploration of teacher support in second-language and special-needs schools, a more prominent trend is present for teacher support in socio-economically disadvantaged schools across countries. Specifically, nearly two times as many systems exhibit an autonomy gap (13) than an autonomy advantage (7), suggesting that reducing the decision-making authority of teachers in high socio-economically disadvantaged schools is a relatively accepted practice. Looking at individual systems, significant autonomy gaps above 0.8 point are present in Abu Dhabi, United Arab Emirates and Israel. In the opposite direction, Finland has an autonomy advantage, with teachers in high socio-economically disadvantaged schools scoring, on average, 0.83 points higher in the autonomy domain.

WITHIN-SYSTEM EQUITY PATTERNS

To explore how countries support teachers differently depending on the high-needs environment in which they teach (high, medium, low), the following section uses triangle graphs to identify equity patterns. Looking at patterns of support across all three teacher professionalism domains can help systems identify which teacher professionalism domain they preference and what areas of support are lacking for teachers in high-needs schools. As teachers in high-needs schools often require greater support to meet the diverse needs of the student body, it is important to distinguish between equity and equality. More equitable patterns of teacher professionalism support are found in systems that have support advantages in at least one teacher professionalism domain. Equal patterns are found in systems where neither a support gap nor a support advantage is present. Less equitable patterns are found in systems that have support gaps in at least one teacher professionalism domain. Replacement patterns are present when both support gaps and support advantages are present in a system, suggesting that in high-needs schools, one teacher professionalism domain may be emphasised in place of another.

To demonstrate each of these equity patterns, triangle graphs, like those introduced in Chapter 2, are used with country average scores for knowledge (K), autonomy (A) and networks (N) plotted on a plane. Each point in the resulting triangle represents the average score of the given domain. Overlapping triangles are provided for the low (in light blue), medium (in dark blue) and high (in grey) concentration categories. Equity profiles of all systems can be found in Annex F. Equal patterns are not displayed in the examples below because it is difficult to distinguish between overlapping triangles that do not have any points that are significantly different.

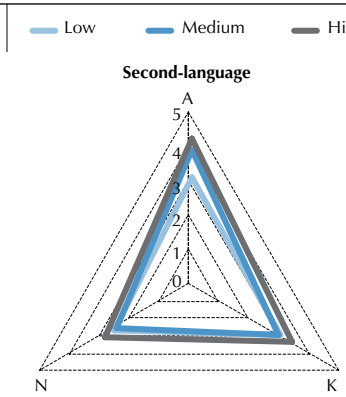
Equity patterns by second-language concentration

A more equitable pattern, indicating that additional support is provided to teachers in high second-language schools, is exemplified by the Latvia triangle graph (see Figure 4.6). In Latvia, significant advantages are present for teachers in high second-language schools across all teacher professionalism domains. This is illustrated in the triangle graph by the difference between high (grey line) and low (light blue line) categories. The triangle for the low category fits entirely inside the high category, indicating that the high category has higher mean scores in all domains. The greatest advantage is found in the autonomy domain, where teachers in the high category score, on average, 1.15 points above teachers in the low second-language schools.

Other countries that display a more equitable pattern for teachers in high second-language schools include Australia, Georgia, Mexico, Spain and Sweden.

■ Figure 4.6 ■

Latvia – more equitable second-language pattern

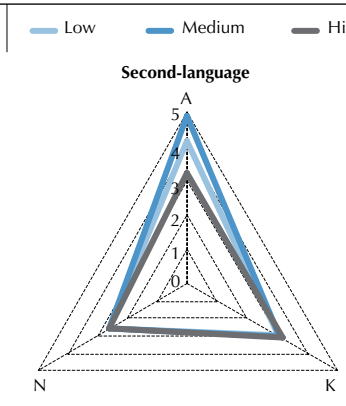


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

A less equitable pattern is illustrated by the Estonia triangle graph (see Figure 4.7), where a large autonomy gap is present. The triangle graph shows nearly equivalent scores for the peer networks and knowledge base scales, but a significant gap of nearly one point in the autonomy scale. Specifically, teachers in high second-language schools in Estonia have a mean autonomy score of 3.16 compared to teachers in low second-language schools, whose average score is 4.08, indicating that they have access to approximately one less autonomy best practice then their peers in relatively lower-needs schools. Other countries/economies displaying less equitable patterns in high second-language schools include Brazil; Croatia; Malaysia; the Netherlands; Portugal; Serbia; Shanghai, China; and the Slovak Republic.

■ Figure 4.7 ■

Estonia – less equitable second-language pattern

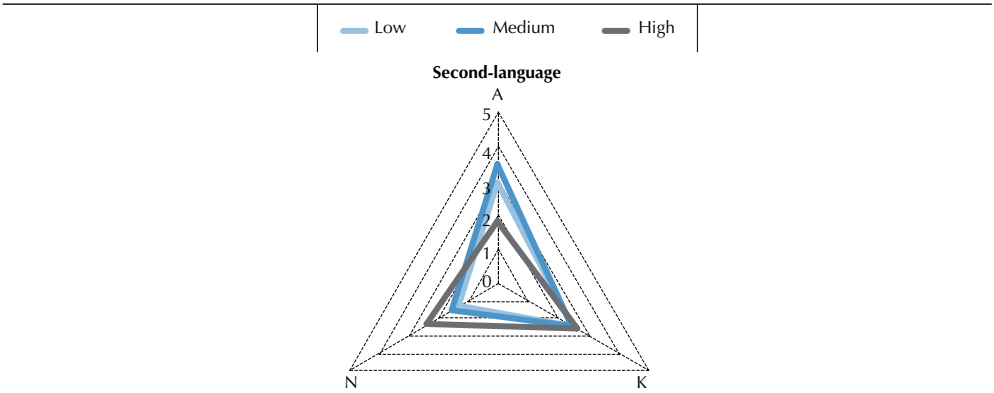


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

A replacement pattern in which a country has at least one significant gap and one significant advantage is illustrated by the Finland triangle graph (see Figure 4.8). In the graph it can be seen that teachers in high second-language schools have a mean autonomy score approximately 1.10 points below teachers in low second-language schools. At the same time, teachers in high second-language schools score, on average, 1.01 points more in the peer networks scale. Replacement patterns indicate that the environment for teachers in high second-language schools is substantially different from those in low second-language schools. Unlike more or less equitable patterns, where significant differences across teacher professionalism domains are all in the same direction, the mix of gaps and advantages in replacement pattern countries leads to schools, and teacher supports, that look distinct, depending on second-language student concentration. Other countries/economies with replacement patterns in high second-language schools include Abu Dhabi, United Arab Emirates; Alberta, Canada; Bulgaria; Chile; the Czech Republic; Italy; New Zealand; Norway; and the Russian Federation.

■ Figure 4.8 ■

Finland – replacement second-language pattern



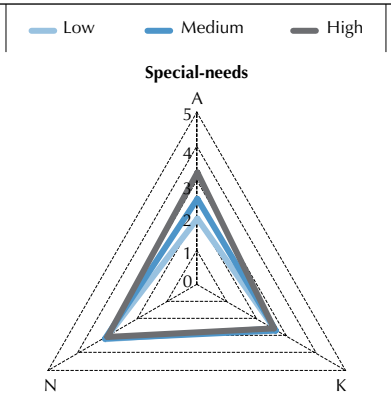
Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Equity patterns by special-needs concentration

Alberta, Canada displays a more equitable pattern in high special-needs schools, indicating that teachers in schools with the highest percentage of students with special needs receive the greatest support. As illustrated in Figure 4.9, teachers in high special-needs schools have greater autonomy than those in low special-needs schools. A difference of 1.35 points indicates that teachers in high special-needs schools have, on average, access to more than one additional best practice related to teacher autonomy. More equitable patterns in high special-needs schools are also found in Chile; England, United Kingdom; Flanders, Belgium; Japan; Korea; Latvia; and New Zealand.

▪ Figure 4.9 ▪

Alberta (Canada) – more equitable special-needs pattern

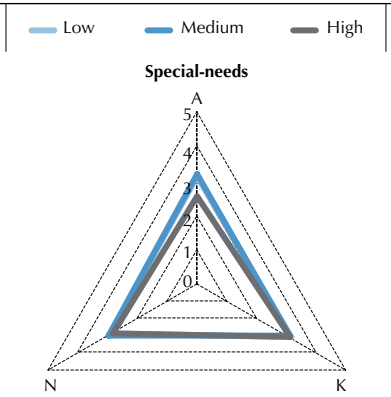


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

The less equitable example of the Netherlands (see Figure 4.10) is nearly a mirror opposite of Alberta, Canada, displaying an autonomy gap of nearly one point between teachers in high special-needs and low special-needs schools. In addition to the Netherlands, countries/economies where less equitable patterns in high special-needs schools are found include Denmark; Malaysia; the Russian Federation; and Shanghai, China.

▪ Figure 4.10 ▪

The Netherlands – less equitable special-needs pattern

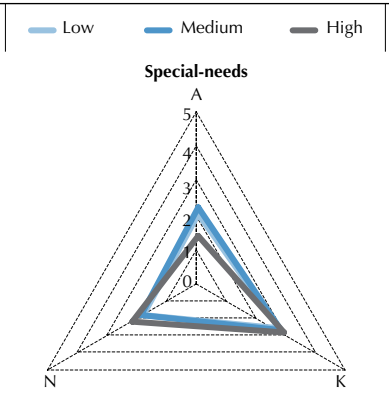


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Relatively few countries demonstrate replacement patterns in high special-needs schools. The differences in teacher support in France (see Figure 4.11) suggests that high special-needs schools may be replacing autonomy support practices with peer networks support practices. Specifically, teachers in high special-needs schools have a mean autonomy scale score 0.60 point lower than their peers in low special-needs schools, but a peer networks scale score 0.38 point higher. This is illustrated in the triangle graph by a high special-needs triangle with an autonomy point nearer to zero and a peer networks point extending beyond that of the low category triangle. Other countries that display a replacement pattern for high special-needs schools include the Czech Republic, Georgia and Romania.

▪ Figure 4.11 ▪

France – replacement special-needs pattern



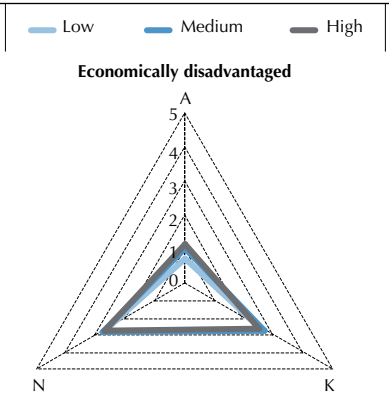
Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Equity patterns by socio-economically disadvantaged concentration

The greatest number of within-country gaps and advantages are found when comparing high and low socio-economically disadvantaged schools. Not surprising given the overall support gaps across all teacher professionalism domains for high socio-economically disadvantaged schools, more equitable patterns for this concentration category are present in fewer countries than the other concentration categories (second-language and special-needs). Figure 4.12 illustrates Georgia as an exemplary more equitable country. In Georgia, teachers in high socio-economically disadvantaged schools score, on average, approximately a half point higher on the autonomy scale than teachers in low socio-economically disadvantaged schools. Other countries with a more equitable pattern in high socio-economically disadvantaged schools include Alberta, Canada; Brazil; England, United Kingdom; Finland; Spain; and Sweden.

▪ Figure 4.12 ▪

Georgia – more equitable socio-economically disadvantaged pattern

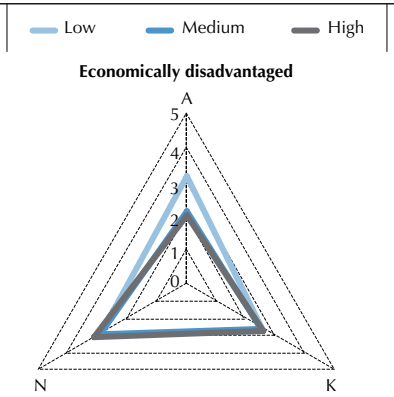


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Given that slightly more than a third of countries have a significant autonomy gap between teachers in high and low socio-economically disadvantaged schools, it is not surprising that the most common trend for the less equitable category is a significant reduction in available autonomy best practices. For example, teachers in high socio-economically disadvantaged schools in Israel (see Figure 4.13) have an autonomy score over one point lower than teachers in low socio-economically disadvantaged schools. The 13 countries/economies that display less equitable patterns in high socio-economically disadvantaged schools are more than the less equitable patterns present in high second-language schools (8) and high special-needs schools (6). In addition to Israel, less equitable patterns can be found in Abu Dhabi, United Arab Emirates; Australia; Estonia; Flanders, Belgium; Italy; Japan; Malaysia; Mexico; Norway; Poland; Portugal; and Shanghai, China.

■ Figure 4.13 ■

Israel – less equitable socio-economically disadvantaged pattern



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

While the majority of the systems in the less equitable category above have significantly lower autonomy scores with non-significant differences in other domains, many countries seem to replace autonomy practices in high socio-economically disadvantaged schools with more peer knowledge support. This replacement pattern is illustrated by Singapore in Figure 4.14. Teachers in low socio-economically disadvantaged schools score, on average, approximately 2.5 points on the autonomy scale. This average score is reduced to less than 2 for teachers in high socio-economically disadvantaged schools, while the average knowledge score is concurrently 0.22 of a point higher. Other replacement patterns in high socio-economically disadvantaged schools are found in Bulgaria, Chile, Denmark and France.

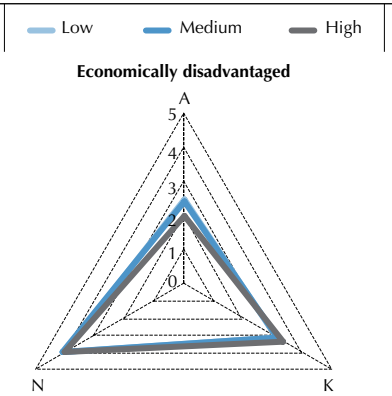
The equity patterns identified in Table 4.2 and the complete equity profiles in Annex F can help countries identify areas of preference, where some teachers are supported over others. For example, in Italy, although significant gaps or advantages are only found in the autonomy domain, teachers in high second-language schools have autonomy scores higher than their peers in low second-language schools, while teachers in high socio-economically disadvantaged schools have less decision-making power than teachers in low socio-economically disadvantaged schools. Additionally, patterns across concentration categories become apparent. For example, in Chile, teachers in high-needs schools, regardless of concentration category, tend to have access to more decision-making authority, but less support for professional knowledge. A similar pattern is found in France.

Combining the equity patterns above reveal model systems that provide more support for teachers in high-needs schools. Table 4.2 presents the most equitable and least equitable systems for teacher

professionalism support. The five most equitable systems have more equitable or equal patterns in all concentration categories (second-language, special-needs, socio-economically disadvantaged), while the nine least equitable systems have less equitable or equal patterns in all concentration categories. All other systems are classified as mixed equity systems. The most equitable systems are exemplars that other systems can use to explore how they may be able to more comprehensively support teachers in high-needs schools.

■ Figure 4.14 ■

Singapore – socio-economically disadvantaged pattern



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Table 4.2 **Most equitable, mixed equity and least equitable countries/economies for teacher professionalism support**

Most equitable	Mixed equity	Least equitable
England (United Kingdom)	Abu Dhabi (United Arab Emirates)	Croatia
Korea	Alberta (Canada)	Estonia
Latvia	Australia	Israel
Spain	Brazil	Malaysia
Sweden	Bulgaria	Netherlands
	Chile	Poland
	Czech Republic	Portugal
	Denmark	Serbia
	Finland	Slovak Republic
	Flanders (Belgium)	
	France	
	Georgia	
	Iceland	
	Italy	
	Japan	
	Mexico	
	New Zealand	
	Norway	
	Romania	
	Russian Federation	
	Shanghai (China)	
	Singapore	

Source: Based on author's calculations of 2013 TALIS data.

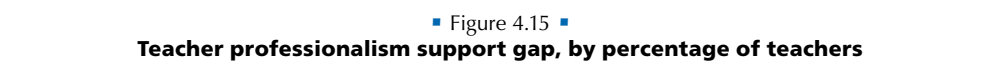
CROSS-SYSTEM DIFFERENCES IN SOCIO-ECONOMICALLY DISADVANTAGED SCHOOLS

Extending the support gap and advantage discussion, this section explores patterns in system support for teachers in high socio-economically disadvantaged schools (see Box 4.3) and two characteristics of interest: prevalence of high-needs schools and average student achievement. To examine the relationship between teacher professionalism support gaps and the prevalence of high socio-economically disadvantaged schools in a country/economy, Figure 4.15 maps the average teacher professionalism support gap[4] onto the percentage of schools that fall into the high socio-economically disadvantaged category. With both axes centred at the mean, the scatter plot illustrates which systems have a larger than average percentage of high socio-economically disadvantaged schools (above the x-axis) or provide more support than average to teachers in high socio-economically disadvantaged schools (to the right of the y-axis).

Box 4.3 **Focus on socio-economically disadvantaged schools**

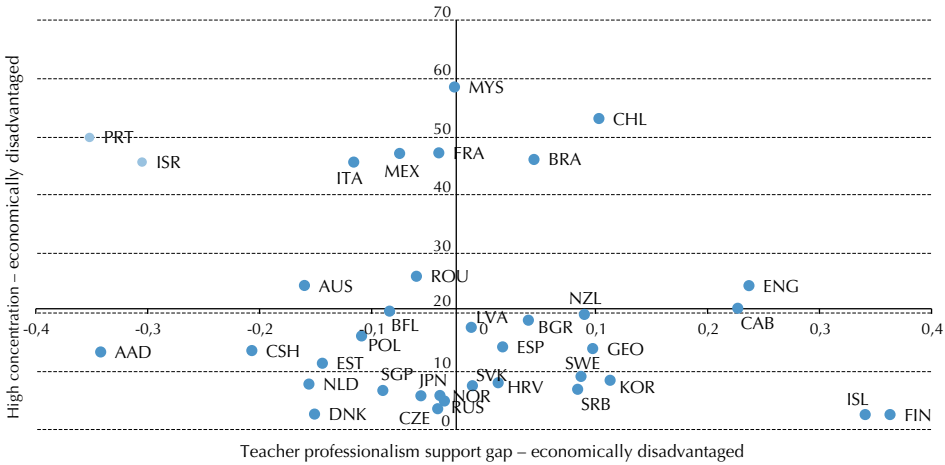
To conduct more fine-tuned analysis, a large sample size is needed. As the primary aim of this chapter is to compare high and low special-needs schools, this section, and those that follow, focuses on the high-needs student category that has the requisite sample size, and therefore statistical power, to complete the analysis – socio-economically disadvantaged. Of the 36 participants in the 2013 TALIS, only the Czech Republic, Denmark, Finland and the Russian Federation have less than 5% of schools classified as high socio-economically disadvantaged schools. In contrast, 18 out of 36 participants (50%) have less than 5% of schools classified as high second-language schools and 27 out of 36 (75%) have less than 5% of schools classified as high special-needs schools.

The most important quadrant for equity purposes is the top left, where countries have an above average percentage of teachers in schools in the high socio-economically disadvantaged category, and teachers in this above average number of schools receive below average support. Especially interesting are Israel and Portugal, which have two of the highest percentages of teachers in the high socio-economically disadvantaged categories at 45.7% and 49.9%, while also having the largest average support gap at -0.31 and -0.35. As a result, in Israel, nearly 50% of their national teaching pool, and those with the higher-needs student populations, receive less support than the 22% of teachers at low socio-economically disadvantaged schools, which often have fewer obstacles in student attendance and achievement. In Portugal the 10% of teachers at low socio-economically disadvantaged schools get more support on average than the 49.9% of teachers in high socio-economically disadvantaged schools. Finland and Iceland should be noted as interesting examples. Finland has the highest average support score (0.36) with the lowest percentage of teachers in high socio-economically disadvantaged schools (2.6%). Similarly to Finland, Iceland has a high average support score (0.34) and a low percentage of teachers in high socio-economically disadvantaged schools (2.7%).



▪ Figure 4.15 ▪

Teacher professionalism support gap, by percentage of teachers in high socio-economically disadvantaged schools



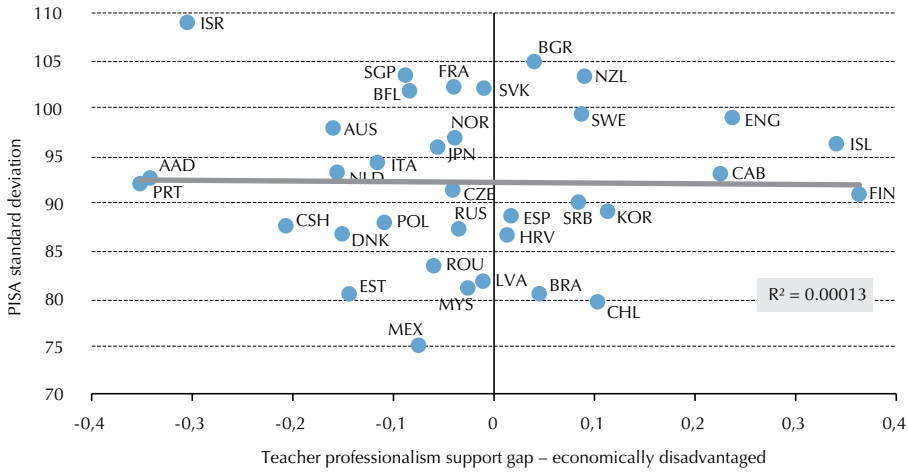
Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

One of the many goals systems have when they invest in teacher professionalism is increasing student achievement. Chapter 2 revealed a positive association between the total amount of support available to teachers in a system and the system's average score on the PISA 2012 test (see Figure 2.23), suggesting that greater teacher professionalism support may be associated with student learning. Here the study explores whether large differences in teacher professionalism support within a given system are related to the system's average PISA score. In short, the answer appears to be no, as there is no correlation between the system's average teacher professionalism support gap and its average PISA score. However, this does not mean that teacher professionalism support gaps cannot teach us something about student achievement. As the support gap is a within-system measure that essentially captures inequities in teacher professionalism support for teachers in high and low socio-economically disadvantaged schools, a more accurate investigation would explore the association between teacher professionalism support gaps and within-country differences in PISA score. Figure 4.16 attempts to do this by mapping the average teacher professionalism support gap by system average PISA standard deviation, for systems with available data. The trend line indicates a very slight negative correlation is present, suggesting that more equitable teacher support is associated with smaller within-system PISA score gaps.

Figure 4.17 further limits the teacher professionalism support gap to the domain with the greatest fluctuation in scores between and within systems, autonomy, for systems with available PISA data. Mapping the average autonomy support gap for teachers in high socio-economically disadvantaged schools against system average PISA standard deviation reveals a strong negative correlation of nearly -0.38. This indicates that countries/economies that provide greater autonomy to teachers in high socio-economically disadvantaged schools have lower within-country PISA score differences, suggesting that giving teachers in high socio-economically disadvantaged schools more decision-making authority may increase equity in within-system student achievement. This pattern holds even after removing Israel as an outlier.

■ Figure 4.16 ■

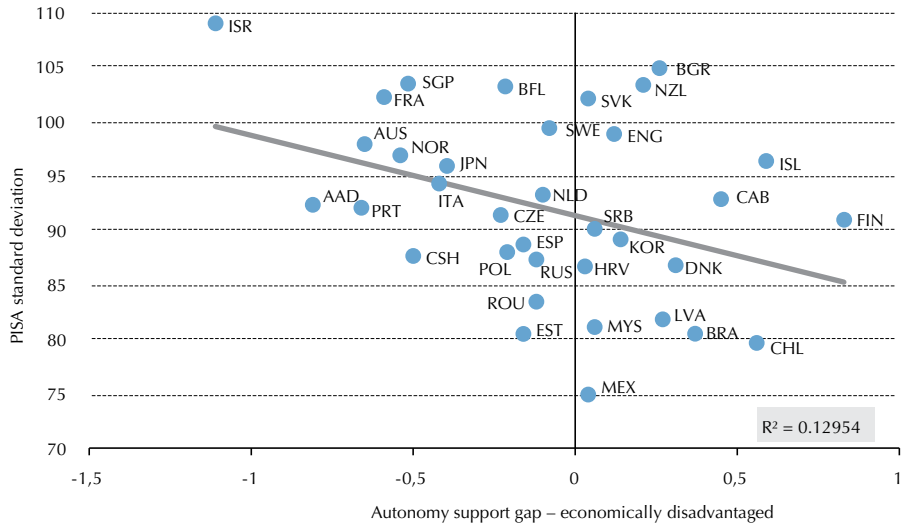
Mean PISA standard deviation and teacher professionalism support gap



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20; OECD (2014a), "PISA 2012 results in focus: What 15-year-olds know and what they can do with what they know", PISA, OECD Publishing, www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf.

■ Figure 4.17 ■

Mean PISA standard deviation and autonomy support gap



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20; OECD (2014a), "PISA 2012 results in focus: What 15-year-olds know and what they can do with what they know", PISA, OECD Publishing, www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf.

PREDICTING TEACHER SATISFACTION WITH THEIR CURRENT WORK ENVIRONMENT

Recognising that systems appear to take a variety of approaches to supporting teachers in high-needs schools, the next section examines whether the association between teacher professionalism domains and measures of teacher satisfaction differ by the school environment teachers work in. The below analysis (see Box 4.4 for details) focuses on the relationship between teachers in schools with low, medium, and high concentrations of socio-economically disadvantaged students and teacher's satisfaction with their current work environment. Satisfaction with the current work environment is the preferred outcome variable, as teachers who are unsatisfied with their current employment are more likely to leave, exasperating teacher attrition issues in high-needs schools.

Box 4.4 Predicting teacher satisfaction with the current work environment

To predict teacher's satisfaction with the current work environment, the analysis follows a similar approach to that taken in Chapter 3. A two-level random intercept Hierarchical Linear Model (HLM) is used to capture the nested nature of teachers in schools where the level one intercept varies by *j*, adjusting the intercept for individual *i*, with *u* representing the level 1 error term and *e* representing the level two error term (see equation 1). Individual level control variables include sex (female = 1), years of experience as a teacher and subject in which a teacher's education degree was attained. School type (private = 1) is used as a school-level control. Both school level and teacher level weights were included in the analysis.

Equation 1

$$\text{Teacher satisfaction}_{ij} = \gamma_{00} + \beta_{01}\,(\text{knowledge}) + \beta_{02}\,(\text{autonomy}) + \beta_{03}\,(\text{peer networks}) + \beta_{04}\,(\text{individual level controls}) + \beta_{10}\,(\text{private}) + V_{0j} + \varepsilon_{ij}$$

Table 4.3 provides results for the analysis from the complete sample predicting teacher satisfaction with their current work environment by teacher professionalism domain. Separate models were completed for teachers in low, medium and high socio-economically disadvantaged schools, allowing us to compare relationships across models and gauge the relative importance of teacher professionalism domains in varied school environments. Evident in the table, the autonomy domain is not significantly related to teacher satisfaction, regardless of school concentration. The knowledge base and peer networks domains are both positive and significantly related to teacher satisfaction in all concentration categories. This suggests that, when looking at the complete sample of all systems, providing teachers with more autonomy is not related to increases in teacher satisfaction[5] while greater support both for professional knowledge and peer networks is associated with more-satisfied teachers. In terms of the magnitude of the relationship, teacher professionalism practices that support peer networks appear to be more important for teachers' satisfaction in schools with a higher concentration of socio-economically disadvantaged students. This suggests that, on average, support in this teacher professionalism domain may influence the teacher satisfaction of teachers in high-needs schools more. As more-satisfied teachers are more likely to remain in their current position, investments in peer networks are investments in teacher retention, reducing the turnover that often plagues high socio-economically disadvantaged schools. It is also interesting to note the non-significant difference between private and public schools in the high concentration category, suggesting that private schools

that work with a higher-needs student population are more similar to the public school counterparts, relative to the difference between more privileged private schools and privileged public schools.

Table 4.3 **Association between teacher professionalism domains and teacher's satisfaction with current work environment by socio-economically disadvantaged concentration – complete sample**

	Low concentration model	Medium concentration model	High concentration model
Knowledge	**0.154 (0.03)**	**0.144 (0.03)**	**0.153 (0.027)**
Autonomy	-0.014 (0.022)	0.02 (0.025)	-0.026 (0.023)
Peer network	**0.197 (0.019)**	**0.155 (0.02)**	**0.261 (0.022)**
Female	**0.094 (0.04)**	**0.176 (0.051)**	0.037 (0.049)
Years of experience	**0.005 (0.002)**	0.003 (0.003)	**0.008 (0.003)**
Humanities [a]	-0.122 (0.069)	**-0.149 (0.056)**	-0.02 (0.055)
Social sciences [a]	0.068 (0.056)	**0.117 (0.052)**	0.04 (0.054)
Other subjects [a]	-0.022 (0.057)	-0.021 (0.046)	0.062 (0.052)
Private school	**0.684 (0.142)**	**1.183 (0.187)**	0.166 (0.256)
Constant	10.901 (0.188)	10.903 (0.181)	11.053 (0.139)
Number of teachers	52.621	35.305	24.237

Notes:

[a] Reference category is teachers with degree in maths or science.

Unstandardised coefficients provided. Robust standard errors in parentheses. Significant results (p<.05) in bold.

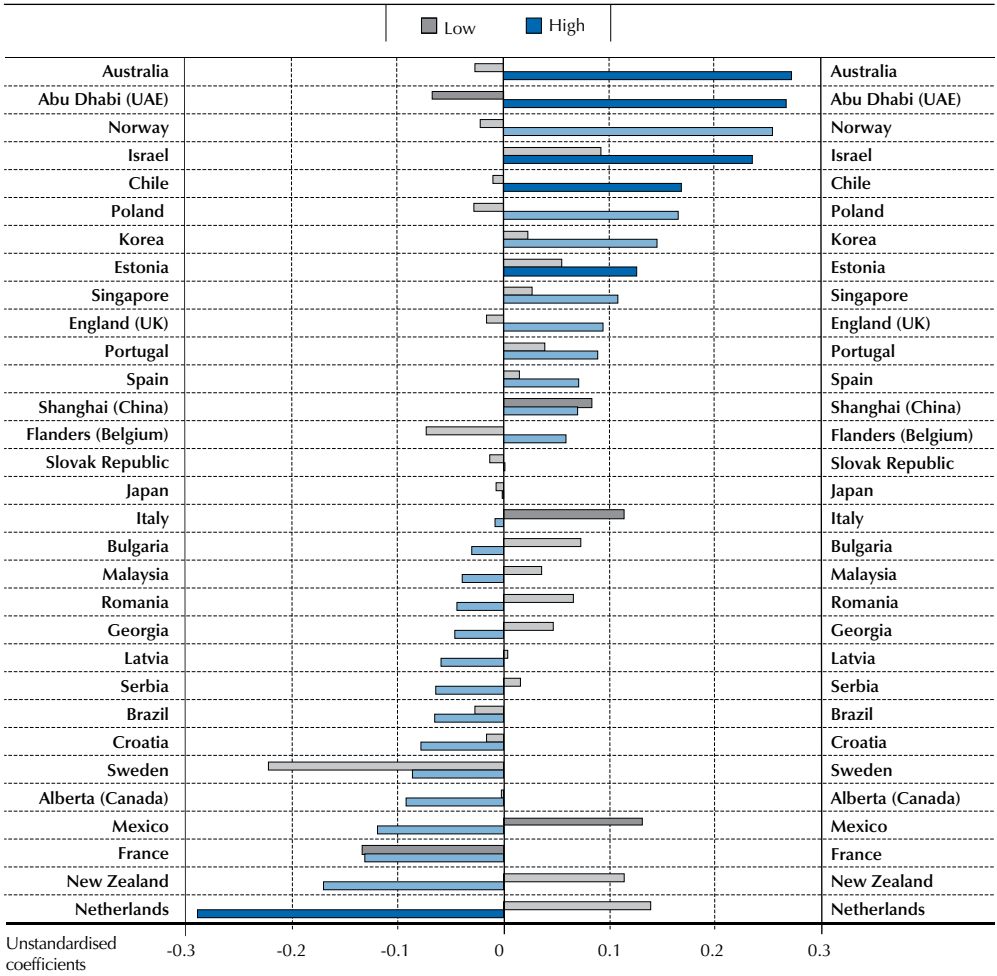
Source: Based on author's calculations of 2013 TALIS data.

To explore the cross-system differences in the effects of teacher professionalism domains, Figure 4.18, Figure 4.19 and Figure 4.20 present the unstandardised coefficients by domain for each system separated by a high and low socio-economically disadvantaged concentration level (see also Annex E). Dark grey and dark blue bars represent significant effects in low socio-economically disadvantaged and high socio-economically disadvantaged schools, respectively. Although not presented, each result controls for teacher's sex, years of experience, subject degree and school type. Systems with less than 5% of teachers employed in high socio-economically disadvantaged schools are excluded from the analysis (see Annex F for a breakdown of teachers by concentration category).

Not surprisingly given the non-significant autonomy results seen in Table 4.3, autonomy is rarely associated with teachers' satisfaction with their current work environment. As demonstrated on Figure 4.18, a significant relationship between autonomy and teacher satisfaction is present in less than a third of the systems, and in no systems is the relationship significant for teachers in both low socio-economically disadvantaged and high socio-economically disadvantaged schools. This finding reinforces the results shown in Table 4.3, which suggest greater levels of teacher autonomy are not associated with greater levels of teacher satisfaction.

▪ Figure 4.18 ▪

The association between the autonomy scale and teacher satisfaction with their current work environment



Notes: Dark grey and dark blue indicate significant effect (p<.05).
Systems with less than 5% high socio-economically disadvantaged schools are not included in the figure.

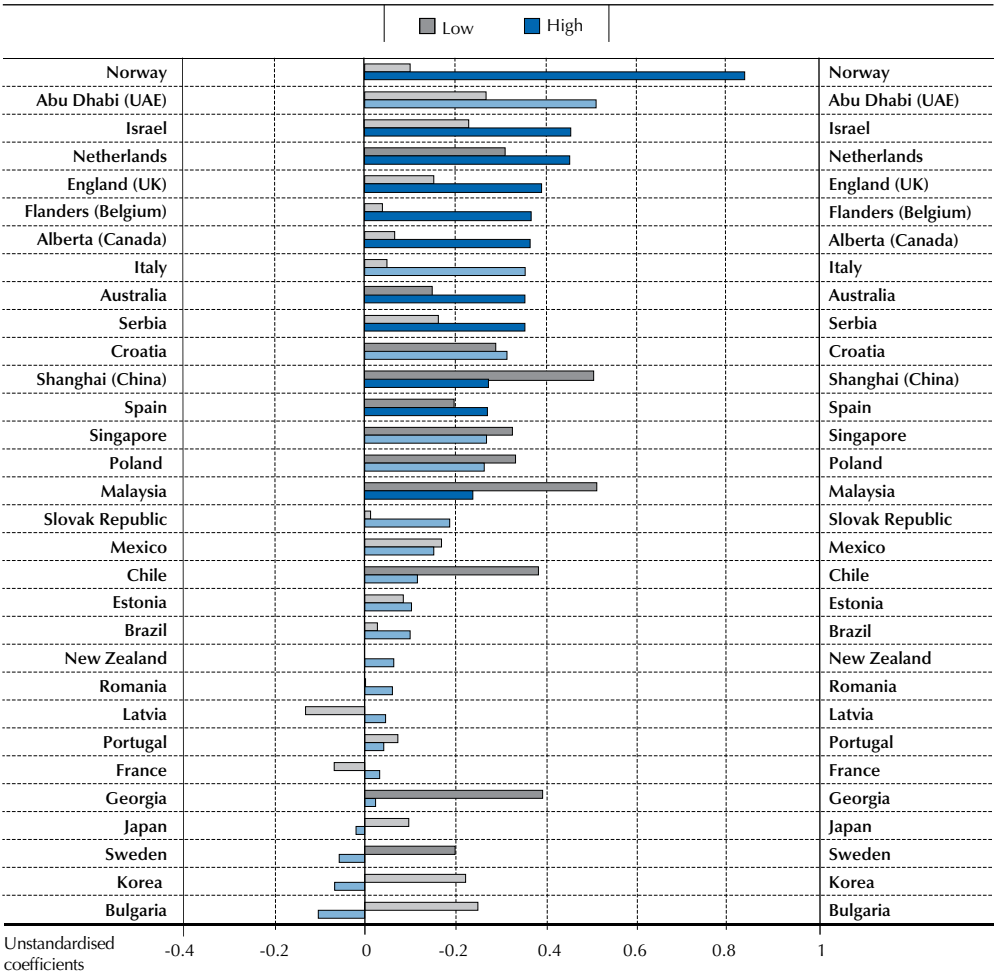
Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

In both the knowledge base and peer networks domain there is a positive association between greater levels of teacher support and more teacher satisfaction. In looking at the differences in this association with the knowledge base domain between teachers in low and high socio-economically disadvantaged schools, it can be seen that in 8 of the 32 countries/economies included, the size of the relationship decreases significantly as the concentration of socio-economically disadvantaged students increases (see Figure 4.19). For example, in Malaysia, the size decreases from 0.51 in the low concentration category to 0.24 in the high concentration category, suggesting that, although still positive, the effect of increasing the knowledge base scale on teacher satisfaction for teachers in higher-needs schools in Malaysia is approximately half that of increasing the knowledge base domain for teachers in lower-needs schools. The opposite, and more common, trend of

additional support being more important for teacher satisfaction in high socio-economically disadvantaged schools is found in 11 of 32 systems. This pattern is demonstrated by Abu Dhabi, United Arab Emirates, where the size of the knowledge-teacher satisfaction association increases from 0.27 in the low concentration category to 0.51 in the high concentration category. The greatest overall association is found for teachers in high concentration schools in Norway, where a one point increase in the knowledge base domain for teachers in high-needs schools is associated with a 0.84 point increase in teacher satisfaction. The lack of an association between the knowledge base scale and teacher satisfaction in low-needs schools in Norway reinforces the importance of targeting teacher support to teachers in high-needs schools to help increase their satisfaction and reduce teacher attrition.

■ Figure 4.19 ■

The association between the knowledge scale and teacher satisfaction with their current work environment



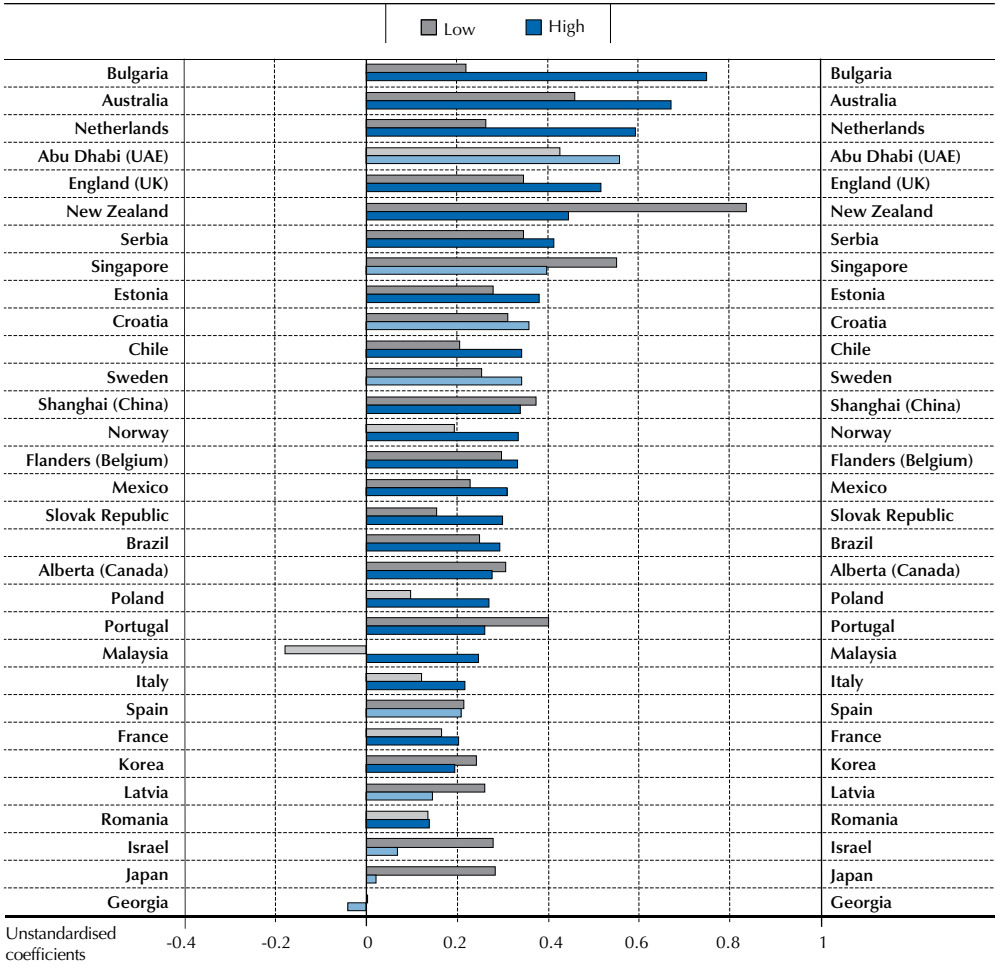
Notes: Dark grey and dark blue indicate significant effect (p<.05).
Systems with less than 5% high socio-economically disadvantaged schools are not included in the figure.

Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Figure 4.20 suggests that there is a near universal positive relationship between the presence of peer networks and teacher satisfaction with their current work environment. Regardless of the concentration of socio-economically disadvantaged students, it is clear that high peer networks are important for teacher satisfaction. A more nuanced look at the numbers finds that, in approximately 60% of systems, the size of the effect is greater in high-needs schools. For example, in Bulgaria, a one point increase in the peer networks, scale is associated with a 0.22 point increase in teacher satisfaction for teachers in low concentration schools, but a 0.75 point increase for teachers in high concentration schools. Although providing additional support for peer networks appears to benefit teachers nearly everywhere, the larger relative benefit of increased support for teachers in high needs schools once again suggests that targeting teacher professionalism support programmes at teachers in high-needs schools may be an effective and important approach.

■ Figure 4.20 ■

The association between the peer networks scale and teacher satisfaction with current work environment



Notes: Dark grey and dark blue indicate significant effect (p<.05).
Systems with less than 5% high socio-economically disadvantaged schools are not included in the figure.

Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

In summary, teacher satisfaction is closely associated with higher scores in the knowledge base and peer networks scales in most systems. However, the size of this association is generally greater for teachers in high concentration schools. This suggests that, while improvements in practices that support teachers' professional knowledge base and teachers' peer networks may benefit all teachers, they may be an especially valuable practice in high-needs schools where they have the greatest impact on teacher satisfaction.

EXPLORING DIFFERENCES IN TEACHER PROFESSIONALISM EFFECTS

While Figure 4.19 and Figure 4.20 clearly illustrate the positive association between increasing professional knowledge and peer networks and increasing teacher satisfaction, the ideal policy approach – investing in comprehensive teacher support practices that address multiple teacher professionalism scales simultaneously – may not be practical in countries that suffer from constrained resources. To help resource constrained systems target their support practices, this section explores the relative benefits of increased support in professional knowledge with the benefits of increased support in peer networks by calculating effect differentials[6] (see Box 4.5).

Box 4.5 **Calculating effect differentials**

Each differential is calculated by subtracting the country coefficient for the low concentration category from the country coefficient for the high concentration category ($\beta_{high} - \beta_{low}$). Associations that were not significantly different from zero were set at zero. Negative differentials suggest that the effect of the teacher professionalism domain on teacher satisfaction with their current work environment is greater for teachers in low concentration schools, while a positive differential suggests the association is greater for teachers in high concentration schools.

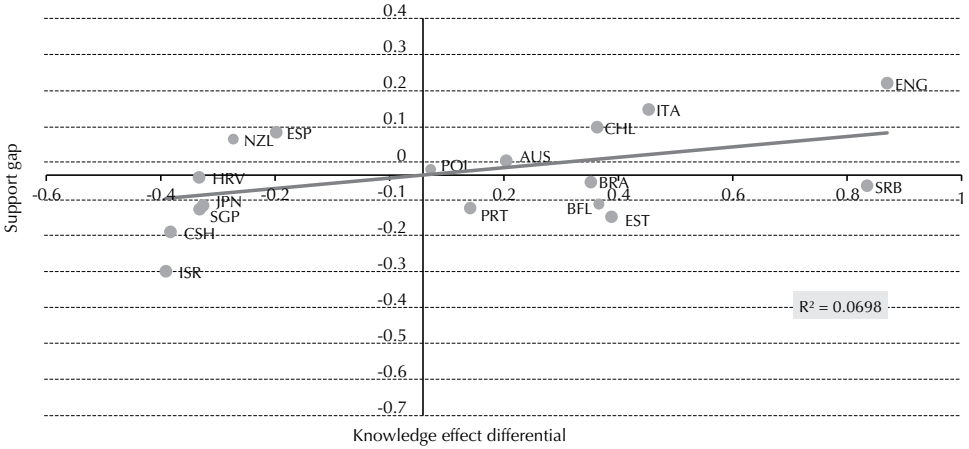
By mapping the difference in the effects found on Figure 4.19 (see above, i.e. the knowledge base gap differential) onto the knowledge base support gap, one can identify which countries with large gaps would benefit most from investing in practices that support teacher professional knowledge. Figure 4.21 presents a scatterplot with the axes centred at their respective means. In the bottom-right quadrant there are five systems with a knowledge base support gap but positive knowledge effect differentials. This suggests that closing the knowledge base support gap by targeting appropriate investments to teachers in high-needs schools, in Brazil; Estonia; Flanders, Belgium; Portugal; and Serbia, may have a great impact on teacher satisfaction and subsequently teacher attrition. In the top-right quadrant, England, United Kingdom is providing more equitable support for teachers in high-needs schools and benefiting from high effect differentials, indicating that when a system aggressively supports teachers in high-needs schools, it can have a substantial influence on teacher satisfaction.

Figure 4.22 maps each system's peer networks support gap onto the peer networks effect differential. The bottom-right quadrant in this graph is significantly more crowded than that in Figure 4.21, suggesting that a large number of systems have a lot to gain by improving peer networks in high-needs schools. Countries/economies with above average peer networks support gaps and above average peer networks effect differentials include Alberta, Canada; Brazil; Bulgaria; England, United Kingdom; France; Mexico; Portugal; Serbia; Shanghai, China; and Singapore. The upper-right quadrant includes systems that provide greater peer networks support for teachers in high-needs schools and benefit from the additional positive effect associated with such support in high-needs schools. This includes Georgia, where teachers in high socio-economically disadvantaged schools are provided with substantially more peer networks support,

which is related with a larger return on teacher satisfaction. Japan appears to be an outlier; teachers in high-needs schools in Japan, on average, have peer networks scores well below their peers in low-needs schools and the influence those practices have on their satisfaction is not as great.

■ Figure 4.21 ■

Knowledge support gap, by knowledge effect differential

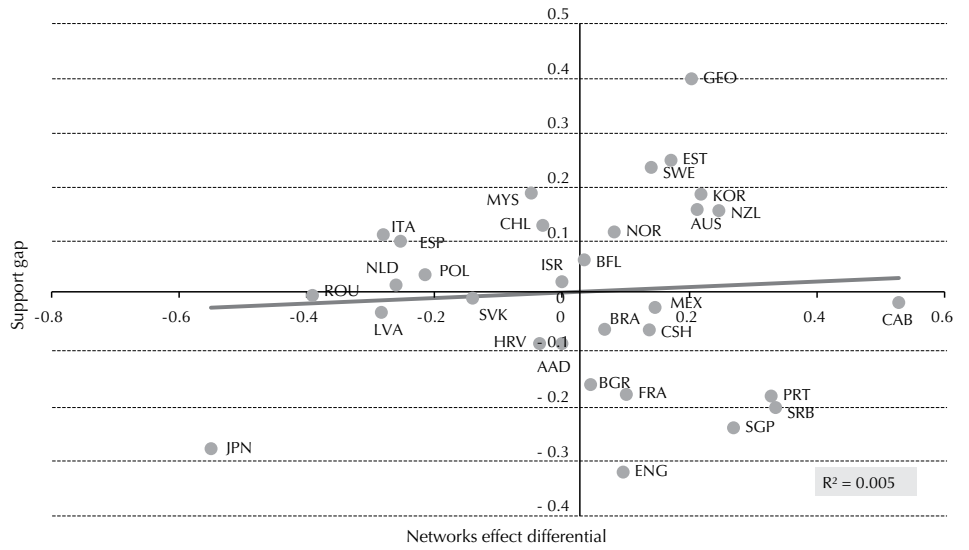


Note: Country and economy data points at the mean knowledge effect differential have been removed to increase image clarity.

Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

■ Figure 4.22 ■

Peer networks support gap, by peer networks differential

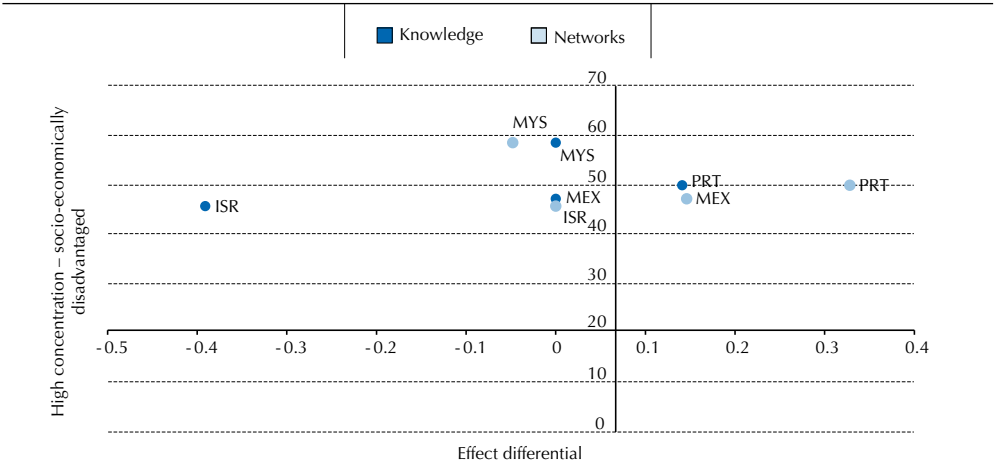


Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

Although investments in support for teacher peer networks and teacher professional knowledge are positively associated with teacher satisfaction, there may be times where resource restraints mean a more targeted approach must be identified. This is especially true in countries with a high percentage of teachers working in high-needs schools, where per-teacher investment leads to a large total sum. To provide guidance to countries looking for targeted areas to provide teacher support, Figure 4.23 plots knowledge base and peer networks effect differentials onto the percentage of teachers who work in high socio-economically disadvantaged schools. Seven countries emerge with over 40% of teachers working in high socio-economically disadvantaged schools: Brazil, Chile, France, Israel, Malaysia, Mexico and Portugal. The four with large differences between the knowledge base effect differential and peer networks effect differential are included in Figure 4.23. In these four countries, three (Israel, Mexico and Portugal) benefit more from investments in teacher peer networks in high-needs schools than investments in teacher professional knowledge. Alternatively, the figure suggests that if Malaysia had to target their teacher support resources, it would be wise to focus resources on practices that increase professional knowledge first, as they have a relatively greater effect on teacher satisfaction in high-needs schools.

■ Figure 4.23 ■

Effect differentials, by percentage of teachers in high socio-economically disadvantaged schools



Source: OECD (2013), *Teaching and Learning International Survey (TALIS): 2013 complete database*, http://stats.oecd.org/index.aspx?datasetcode=talis_2013%20.

DISCUSSION

This chapter identified teacher professionalism support gaps and explored how supportive teacher professionalism practices that contribute to a professional knowledge base, provide teachers with autonomy and encourage high peer networks are related to teachers' satisfaction. Results suggest that teacher professionalism gaps are most apparent when comparing teachers in high and low socio-economically disadvantaged schools. Regardless of high-needs student group (socio-economically disadvantaged, special needs, or second language), the greatest amount of within-system diversity in teacher support is found in the autonomy domain.

Four equity patterns were identified to examine within-system patterns of teacher support by the school context in which they work. More equitable patterns are found in countries that have average scores significantly higher for teachers in high-needs schools in at least one teacher professionalism domain. Equal patterns are found in countries where there is no statistically significant difference between high and low categories in all teacher professionalism domains. Less equitable patterns are found in systems that have average scores significantly higher for teachers in relatively low-needs schools in at least one teacher professionalism domain. Replacement patterns are present when a system has at least one significant support gap and one significant advantage across teacher professionalism domains. By looking across all high-needs groups, five exemplary, most equitable systems become clear: England, United Kingdom; Korea; Latvia; Spain; and Sweden. Future research should further explore how these countries support teachers in high-needs schools and how this support affects teacher and student performance and well-being.

Additional findings suggest that teacher professionalism support gaps are not associated with system average PISA score. However, the system average score can hide large within-country achievement differences. When the measure of differences in teacher support (teacher professionalism support gap) was compared with the more appropriate measure of within-system differences in student achievement (PISA standard deviation), an interesting relationship was revealed. Specifically, a marginal correlation was found with increases in equity (i.e. more support for teachers in high-needs schools) associated with decreases in the country average PISA standard deviation. The relationship between teacher professionalism support gap and average PISA standard deviation was best highlighted when the support gap was limited to the autonomy scale.

The ways in which teachers' professionalism is supported can influence their satisfaction with their current work environment. The results here indicate that teacher professionalism practices are almost always positively associated with increased teacher satisfaction, especially when the support comes in the form of increased professional knowledge or increased peer networks. Important for equity concerns, this positive association is largely amplified in high-needs schools, suggesting that one of the best investments schools can make in increasing teacher satisfaction is providing practices that support teacher professionalism. Finally, although part of this analysis compares teacher professionalism domains to one another, it is best to approach teacher professionalism as a complex set of interdependent practices that are best implemented in unison to provide holistic support for teachers in high-needs schools.

Notes

1. See Box 4.3 for more information on omission of the second-language and special-needs categories from this analysis.

2. Within-system findings on the autonomy domain should be interpreted cautiously as the autonomy measures were included only in the principal questionnaire, therefore all autonomy gaps represent between-school differences within a system.

3. The within-system support gaps are more difficult to interpret for special needs due to the lack of schools in many countries with a special-needs population above 30%. In these instances the medium group was used in place of the high group to calculate the support gap; however, doing so leads to a different interpretation and likely smaller gaps and advantages as the school compositions under comparison are not as drastically different.

4. The average teacher professionalism support gap equals the sum of the support gap in the three teacher professionalism domains (knowledge, autonomy, and peer networks) divided by three.

5. The non-significant relationship between autonomy and teacher satisfaction can be partially attributed to the lack of individual level data in the autonomy domain.

6. The autonomy domain is not included in this analysis as it is generally not significantly related to teachers' satisfaction with their current work environment. This is potentially due to the lack of individual level data discussed in note 2.

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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