

## Chapter 2

# DEVELOPING HIGH-QUALITY TEACHERS FOR THE SCHOOLS WITH THE GREATEST NEED

This chapter focuses on the key resource in education: teachers. Based on PISA 2012 results, it discusses how the quality of financial and teaching resources is associated with student performance – particularly in disadvantaged schools. The chapter examines how some countries manage to recruit the best candidates to become teachers, how these teachers are trained to provide quality education in difficult circumstances, and how some countries attract and retain high-quality teachers in disadvantaged schools.



School systems in the countries and economies that participated in PISA 2012 vary widely in the amount of resources – financial, human and material – that they invest in education. While research is inconclusive, the relationship between the *quantity* of educational resources and student performance is usually weak, and this is also what the results from PISA show. In fact, most of the variation in student performance is explained by the *quality* of educational resources and by how those resources are used. Teachers are the key resource in education; and how they are developed and supported throughout their careers necessarily has a strong impact on the performance of students and schools – particularly those with the greatest need.

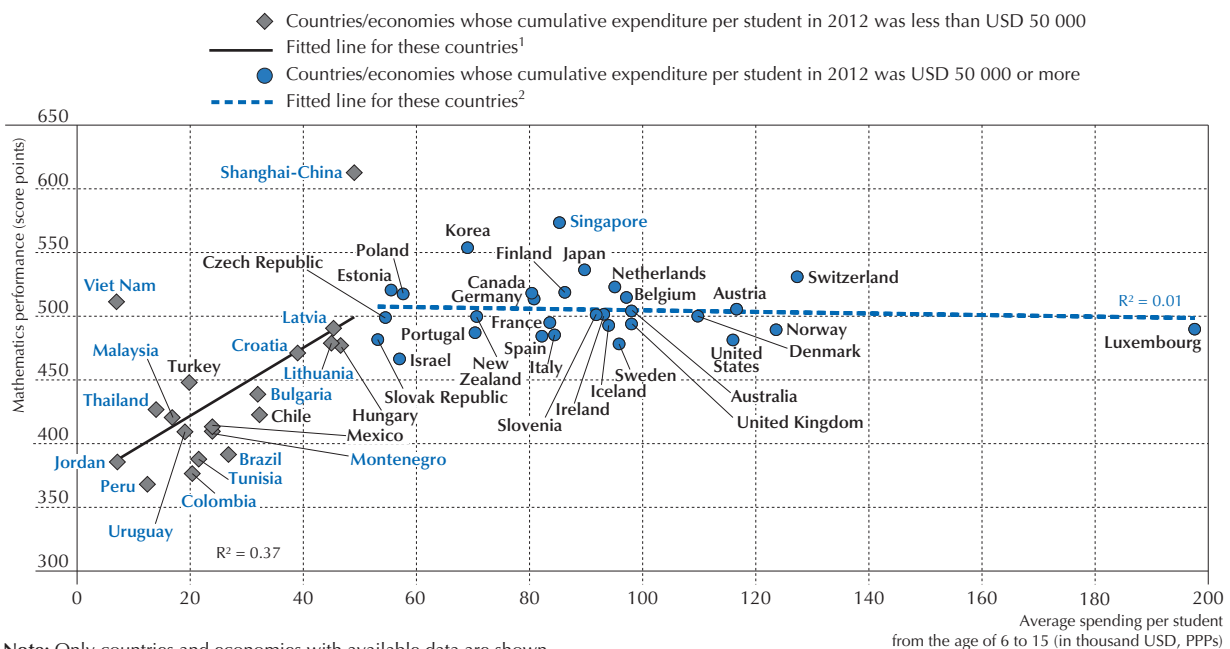
## WHAT THE RESULTS FROM PISA 2012 SHOW

### Financial resources

The relationship among a country's/economy's income per capita, its level of expenditure on education per student, and the level and distribution of learning outcomes is complex. While among countries and economies whose cumulative expenditure per student is below USD 50 000 (the level of spending in the Czech Republic, Hungary and the Slovak Republic), higher expenditure on education predicts higher scores in the PISA mathematics assessment. However, this is not the case among high-income countries and economies, including most OECD countries. Among this latter group of countries, factors other than wealth are better predictors of student performance. For example, the Slovak Republic and the United States both score at 481 points in mathematics, but the United States' cumulative expenditure per student is more than double that of the Slovak Republic (Figure 2.1).

Figure 2.1

### Spending per student from the age of 6 to 15 and mathematics performance in PISA 2012



Note: Only countries and economies with available data are shown.

1. A significant relationship ( $p < 0.10$ ) is shown by the solid line.

2. A non-significant relationship ( $p > 0.10$ ) is shown by the dotted line.

Source: OECD, PISA 2012 Database, Tables I.2.3a and IV.3.1.

Allocating resources to where they can make the greatest difference is key. PISA finds that the degree of equity with which resources are allocated to socio-economically disadvantaged and advantaged schools is closely related to the performance of education systems. In higher-performing systems, principals in advantaged and disadvantaged schools reported similar levels of the quality of their schools' physical infrastructure and educational resources (OECD, 2013a, Table IV.1.3). As shown in Figure 2.2, even after accounting for per capita GDP, 40% of the variation in mathematics performance across OECD countries can be explained by the degree of equity in schools' educational resources between socio-economically advantaged and disadvantaged schools.



Figure 2.2

Systems' allocation of educational resources and mathematics performance



Note: Equity in resource allocation refers to the difference in the *index of quality of schools' educational resources* between socio-economically advantaged and disadvantaged school.

1. A significant relationship ( $p < 0.10$ ) is shown by the solid line.

Source: OECD, PISA 2012 Database, Table IV.1.3.



How resources are allocated is just as important as the amount of resources available. High-performing systems tend to prioritise higher salaries for teachers over other expenditures, such as supporting smaller classes (see OECD, 2013a, Figure IV.1.10). Among countries whose per capita GDP is more than USD 20 000, including most OECD countries, systems that pay teachers more (i.e. higher teachers' salaries relative to national income) tend to perform better in mathematics. The correlation between these two factors among 33 high-income countries is high (0.30).<sup>1</sup> By contrast, among countries whose per capita GDP is under USD 20 000, a system's overall academic performance is unrelated to its teachers' salaries, possibly signalling that other resources (material infrastructure, instructional materials, transportation, etc.) also need to be available to a certain threshold, after which improvements in material resources no longer benefit student performance, but improvements in human resources, through higher teachers' salaries, for example, do.<sup>2</sup>

### Teachers

Many education systems have trouble recruiting high-quality graduates as teachers, particularly in shortage areas, and retaining them once they are hired.

A shortage of teachers often implies that teachers are overloaded with work, both instructional and administrative, are unable to meet students' needs, and are sometimes required to teach subjects outside their expertise. School systems respond to teacher shortages in the short term by lowering the qualification requirements for entry to the profession, assigning teachers to teach in subject areas in which they are not fully qualified, increasing the number of classes that teachers are required to teach, increasing class size, or some combination of these (OECD, 2005). Such responses, even if they ensure that every classroom has a teacher, raise concerns about the quality of teaching and learning.

Research into teacher preferences for schools finds that the least-favoured schools tend to be those in rural and remote settings, together with schools with higher proportions of disadvantaged children and children from ethnic and minority-language backgrounds (OECD, 2005). Schools in these settings are more likely to have staff shortages (Ingvarson and Rowe, 2007), and their students tend to find themselves in classes with the least-experienced and least-qualified teachers (OECD, 2005).

Results from PISA confirm this. Although in the majority of OECD countries, students in disadvantaged schools have access to more full-time teachers,<sup>3</sup> in Austria, Belgium, Chile, the Czech Republic, Iceland, Luxembourg, the Netherlands and Slovenia, disadvantaged schools tend to have smaller proportions of highly qualified teachers – defined as teachers with advanced university qualifications – than advantaged schools (Table 2.1).

This higher concentration of underqualified or novice teachers in schools serving disadvantaged students tends to have a negative impact on student performance (Darling-Hammond, 2010), further diminishing students' chances of success. Depending on how teachers' careers are managed and on financial incentives, more able teachers often avoid teaching in those schools or leave once they have gained enough experience, resulting in very high turnover rates in many cases<sup>4</sup> (Table 2.2) and in concerns about the continuity of education programmes in such schools (OECD, 2005).

In order to assess how school principals perceive the adequacy of the supply of teachers in their schools, PISA asked them to report on the extent to which they think instruction in their school is hindered by a lack of qualified teachers and staff in key areas. A composite *index of teacher shortage* was created, based on related questions, such that the index has an average of 0 and a standard deviation of 1 for OECD countries. Higher values on the index indicate that principals feel that there are more problems with instruction because of teacher shortages.<sup>5</sup>

Teacher shortages vary within countries, as measured by the standard deviation of the *index of teacher shortage* (Figure 2.3). Differences in teacher shortage between advantaged and disadvantaged schools are particularly large (greater than 0.5 index point, or half the standard deviation of this index) in Australia, Brazil, Chile, the Czech Republic, Indonesia, Ireland, Mexico, New Zealand, Peru, Serbia, Shanghai-China, the Slovak Republic, Sweden, Turkey, the United States, Uruguay and Viet Nam (OECD, 2013a, Table IV.3.11). In 14 countries and economies, principals of public schools tended to report more teacher shortage than principals of private schools did. In all of these countries and economies, except Italy and the United Arab Emirates, principals of disadvantaged schools reported more teacher shortage than principals of advantaged schools (OECD, 2013a, Table IV.3.11).



Table 2.1

## Teachers' and schools' average socio-economic background

	Simple correlation between the school mean socio-economic background and:	
	Percentage of full-time teachers	Percentage of teachers with university-level degree among all full-time teachers
Australia	-0.21	0.02
Austria	-0.13	<b>0.64</b>
Belgium	-0.18	<b>0.58</b>
Canada	0.01	0.03
Chile	-0.04	0.25
Czech Republic	-0.32	<b>0.37</b>
Denmark	0.01	0.16
Estonia	0.14	0.00
Finland	0.17	-0.01
France	w	w
Germany	-0.15	-0.02
Greece	-0.11	0.24
Hungary	-0.33	0.07
Iceland	<b>0.20</b>	<b>0.30</b>
Ireland	0.12	-0.08
Israel	-0.08	0.20
Italy	-0.06	0.13
Japan	-0.14	0.20
Korea	-0.14	-0.03
Luxembourg	-0.16	<b>0.39</b>
Mexico	-0.09	-0.04
Netherlands	-0.34	<b>0.62</b>
New Zealand	-0.04	0.07
Norway	-0.05	0.15
Poland	-0.02	-0.05
Portugal	0.14	0.04
Slovak Republic	-0.09	<b>-0.21</b>
Slovenia	<b>0.46</b>	<b>0.55</b>
Spain	-0.29	m
Sweden	0.05	-0.04
Switzerland	-0.11	0.24
Turkey	0.12	0.04
United Kingdom	-0.36	-0.03
United States	-0.42	0.10
<b>OECD average</b>	-0.07	0.15

Note: Data in bold if relationship is statistically different from the OECD average.

m = Data are not available. These data were not submitted by the country or were collected but subsequently removed from the publication for technical reasons.

w = Data have been withdrawn or have not been collected at the request of the country concerned.

Source: OECD (2010a), *PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume II)*.

Table 2.2

## Disadvantaged schools have difficulties attracting and retaining teachers

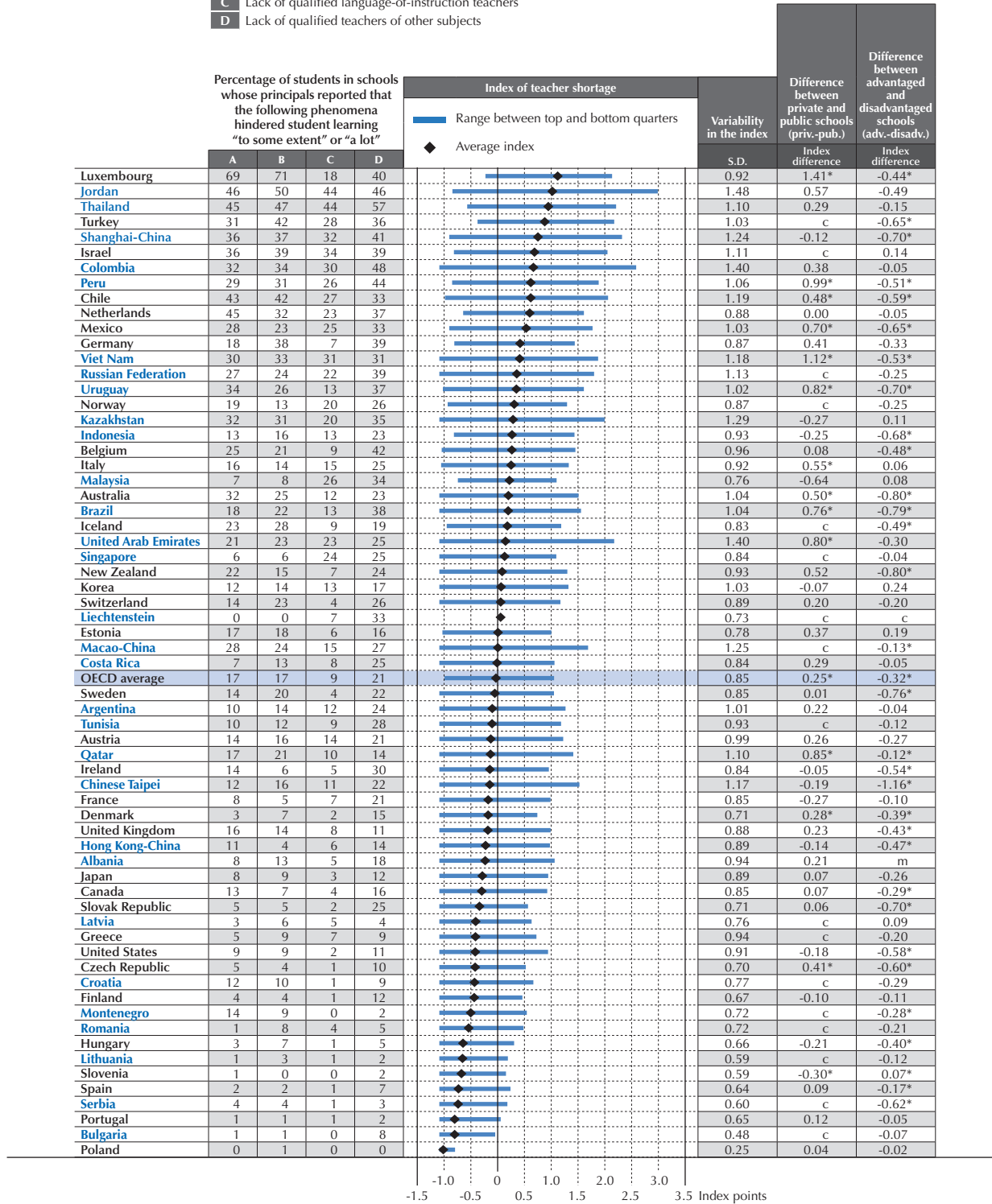
Country studied	Findings	Study
Australia	Rural schools with higher proportions of aboriginal students are seen as less desirable, making it harder to recruit and retain teachers.	Michaelson, 2006
France	Better qualified teachers are less likely to teach in schools containing minority and disadvantaged children.	OECD, 2005
Japan	School leaders report that it is difficult to recruit and retain teachers to work in schools with children born abroad.	Gordon, 2006
New Zealand	Teachers in schools with higher proportions of low socio-economic status students have higher propensity to leave.	Richie, 2004
Norway	Schools with higher levels of minority students are harder to staff and teachers at schools with higher proportions of minority students and students with special needs are significantly more likely to leave.	Bonesrønning, Falch and Strøm, 2005
United States	Teachers in schools with higher proportions of low-SES or minority students have higher propensity to leave.	Hanushek, Kain and Rivkin, 2004



Figure 2.3

Impact of teacher shortage on instruction, school principals' views

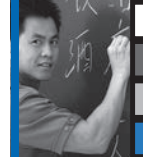
- A Lack of qualified mathematics teachers
- B Lack of qualified science teachers
- C Lack of qualified language-of-instruction teachers
- D Lack of qualified teachers of other subjects



Note: Higher values on the index of teacher shortage indicate greater incidence of teacher shortage. Differences that are significant at the 5% level ( $p < 0.05$ ) are marked with \*.

Countries and economies are ranked in descending order of the average index.

Source: OECD, PISA 2012 Database, Tables IV.3.10 and IV.3.11.



On average across OECD countries, principals of schools located in rural areas reported more teacher shortage than principals of schools in towns, and they, in turn, reported more teacher shortage than principals of schools in cities. This is observed in Iceland, Mexico and Qatar. However, in Chile, the Czech Republic, Hungary, Romania and the Slovak Republic, principals of schools located in towns and cities reported similar levels of teacher shortage, while principals of schools located in rural areas reported more teacher shortage than principals of schools in towns did. In contrast, in Australia, Brazil, Canada, Columbia, Finland, Indonesia, Ireland, Montenegro, New Zealand, Norway, Peru, Chinese Taipei, the United Arab Emirates, Uruguay and Viet Nam, principals of schools located in rural areas and in towns reported similar levels of teacher shortage, while principals of schools located in cities reported less teacher shortage than principals of schools in towns. In 34 countries and economies, the level of teacher shortage reported by principals does not vary by where school is located (OECD, 2013a, Table IV.3.11).

### POINTERS FOR POLICY AND PRACTICE

Developing high-quality teachers and matching teacher supply with demand are fraught with challenges: how to expand the pool of qualified teachers, how to address shortages in specific subjects, how to recruit teachers to the places where they are most needed, how to allocate teachers to schools equitably and efficiently, and how to retain qualified teachers over time. Common to most education systems that demonstrate high performance and low between-school variation in performance in PISA is that they attract teachers equitably across the school system, including to hard-to-staff schools.

#### **Provide adequate resources to address disadvantage**

As discussed above, after a certain threshold of expenditure, the way resources are spent is more important than the total amount spent. Even in the case of disadvantaged students, quasi-experimental studies in the Netherlands showed that extra resources alone, for personnel and for computers, have not shown substantial positive effects (Oosterbeek et al., 2007).

Resourcing schools is technically complex and politically sensitive. Students and schools have different socio-economic profiles and varying needs, and funding schemes need to reflect these. While it is generally agreed that differences in instructional costs need to be taken into consideration in funding allocations, there are debates about the amount of additional funding that schools in which disadvantaged students are concentrated should receive. As noted above, according to principals' reports in PISA, disadvantaged schools in OECD countries have lower student-teacher ratios but less experienced and qualified teachers. Since the literature on resourcing education indicates that high-quality teaching has a greater impact than some resource-intensive practices, such as having smaller classes (Rivkin, Hanushek and Kain, 2005), it is likely that current funding arrangements are not optimal for disadvantaged students.

There are different methods to determine the allocation of resources that schools receive:

- *Administrative discretion* is based on an individual assessment of each school. Although it can serve schools' needs more accurately, it requires extensive knowledge of each school and measures to prevent misuse of resources. For example, bidding by submitting budget estimates encourages schools to submit inflated demands, which can lead to arbitrary cuts by funding agencies.
- *Incremental costs* is another type of school funding scheme that takes into consideration the historical expenditure to calculate the allocation for the following year; but this offers no incentive for schools to reduce their expenditure or increase their efficiency. Administrative discretion and incremental costs are often combined, and usually these are used in centralised systems.
- *Formula funding* relies on a mathematical formula that contains a number of variables, each of which has a cash amount attached to it to determine school budgets (Levacic, 2008). In such formulae, there are four main groups of variables used across OECD countries: student number and grade level-based; needs-based; curriculum or education programme-based; and school characteristics-based. In general, formula funding is better at ensuring equity and can be more efficient than administrative discretion because it avoids anomalies related to differences in bargaining power.

A well-designed funding formula can be an efficient, stable and transparent method of funding schools (Levacic, 2008). Formula funding combines both horizontal equity – schools with similar characteristics are funded at the same level –



and vertical equity – schools with greater need receive higher resources. However, this type of funding may be difficult to implement and may not cover all schools' costs (infrastructure, staff, etc.). For example, funding formulae require transparency and must be sufficiently detailed and include reliable data (Levacic, 2008). Progressive voucher schemes can also raise extra resources for the students and schools that need them most (Box 2.1).

### Box 2.1. Weighted student funding schemes in the Netherlands and Chile

Since 1985, primary schools in the **Netherlands** with substantial numbers of disadvantaged students receive more funds. Although the level of funding for each school is determined by the needs of individual students, there is no requirement that schools use these extra resources directly on these students. Schools can, for example, choose to reduce the number of students per class. The “weight” of each student is determined by the parents' education level. Empirical research conducted by Ladd, Fiske, and Ruijs (2009) studying the Dutch funding system shows that these mechanisms have succeeded in distributing differentiated resources to schools according to their various needs. Primary schools with a high proportion of weighted students have, on average, about 58% more teachers per student, and also more support staff.

In **Chile**, a voucher system was initially introduced with equal weights for all students. Research indicates that the system significantly increased segregation between schools and also resulted in rising levels of student debt (Elacqua, 2009; Hsieh and Urquiola, 2006). In 2008, a weighted voucher scheme was adopted to provide more resources for students from disadvantaged backgrounds and to schools with high concentrations of disadvantaged students. The value of the voucher is 50% higher for students from disadvantaged backgrounds and for indigenous children; in 2011, the value of the voucher was increased 21% for the most disadvantaged students (approximately 40% of the recipients). In addition, there is a quality-assurance system that includes improvement plans for schools that accept this voucher. Top-up payments by parents of students who are not considered disadvantaged are allowed in publicly subsidised private schools. Preliminary evidence (Elacqua, 2009) finds that the weighted voucher can mitigate the segregation effects introduced by universal vouchers. The problems with Chile's voucher system (Treviño et al., 2013) have been so great that student and teacher mobilisations throughout the country have led the incoming government to pledge to reverse the system and increase subsidies for public universities.

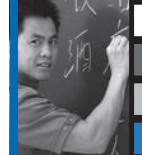
**Sources:** Elacqua (2009); Hsieh and Urquiola (2006); Ladd, Fiske and Ruijs (2009); Treviño et al. (2013).

Sometimes, an insufficient amount of funding leads to misallocations. A study in the United Kingdom found that local governments divert school funding intended for disadvantaged students to other purposes (Sibieta, Chowdry and Muriel, 2008).<sup>6</sup> And those education authorities with greater fiscal capacity can supplement expenditures on education from their own tax revenues, increasing economic inequalities between jurisdictions (Chetty and Friedman, 2011). For example, in Austria and the Czech Republic there are significant differences in education expenditures across regions (Steiner and the Styrian Association for Education and Economics, 2011; Strakova, Simonova and Polechova, 2011).

In systems with large between-school variation and a concentration of low-performing schools, locally based support structures can be created (Boxes 2.2 and 2.3).

In some countries, targeted programmes like these already represent a significant share of education budgets. In the United Kingdom, for example, since April 2011, schools receive an additional GBP 430 a year for every student who is entitled to a free school meal (a measure of disadvantage), and the schools decide how the money is spent. Targeted programmes separate from the funding formula, together with strong accountability measures, help to ensure that schools spend the additional resources on disadvantaged students (Kendall et al., 2005; DfES and H.M. Treasury, 2005; Simkins, 2004).





### Box 2.2. Special education areas in France

France's special education areas were introduced in 1981 and were initially conceived to promote education projects and partnerships with local stakeholders in an effort to improve academic performance (Bénabou, Kramarz and Prost, 2009). A hallmark of area-based support was the *Zones d'Éducation Prioritaire* (ZEP, "Priority Education Zones"), which involved 15% of students in primary and lower secondary schools in more than 800 areas. The additional resources were mainly aimed at reducing class size and giving incentives to teachers and extra funding to the schools to enable them to provide supplementary hours of instruction. Schools had discretion on resource allocation. The additional resources had a very limited impact on academic performance, however. The quality of teachers diminished as salary bonuses were insufficient to attract more experienced teachers, and the socio-economic composition of ZEP schools worsened.

These results showed the need to concentrate more resources on fewer schools. In the school year 2006/07, the existing networks were replaced by two networks, differentiated by levels of need: *Réseaux de Réussite Scolaire* (RRS, "Networks of School Success"), which include around 14% of students in compulsory schooling, and *Réseaux d'Ambition Réussite* (RAR, "Networks of Ambition Success"), which are confined to the most disadvantaged schools. The RAR provides 16% higher expenditure per student than the average. RAR schools receive additional funding mainly for supplementary teachers (90%) and bonuses (8%). In the school year 2010/11 a new programme was implemented aimed at spreading innovations in pedagogy, school life and human resources, and providing a safer environment (Moisan, 2011).

Sources: Bénabou, Kramarz and Prost (2009); Greek Ministry of Education (2011); Moisan (2011); O'Brien (2007).

### Box 2.3. Funding disadvantaged students and their schools in Chile

In Chile, a funding programme targeting disadvantaged students and their schools, the *Subvención Escolar Preferencial* (SEP), was introduced in 2008. The larger share of educational expenditure is distributed per student, topping-up a flat-rate voucher. In addition, there is an allocation for schools that enrol a significant number of disadvantaged students. Acceptance of these supplementary funds is voluntary but leads to mandatory technical support and accountability to ensure value for money.

Schools choosing to receive the supplement are required to elaborate a plan for educational improvement, setting objectives for improvement in education outcomes and defining measures to support students with learning difficulties. In addition, participating schools are not permitted to select students by ability or socio-economic background, and cannot charge top-up fees for vulnerable students.

SEP schools are classified into three categories: autonomous, emerging or recovering schools, based on the results of a national standardised test (SIMCE) and, to a lesser extent, other performance criteria. Autonomous schools are allowed to design their own improvement plan and are accountable for the results. Emerging and recovering schools are supported by the Education Ministry in drafting their progression plans, and recommendations may be prescriptive in some cases. Improvement plans should contain strategies and actions on curricula, leadership, climate and funding for the subsequent four years. Schools have access to technical assistance for school improvement, including through certified private providers, and a quality-assessment system. Information is provided to parents on the progress of their children and their school.

The additional funding that schools can receive is significant. An autonomous school where fewer than 15% of the students are disadvantaged receives an approximately 50% increase in the school subsidy for each vulnerable child. If the concentration of disadvantaged students is at least 60%, schools can receive an extra 10% of the base voucher for every student, including those who are not classified as vulnerable.

Source: Brandt (2010).



### **Create a teaching force that reflects student demography and secure high-quality teaching in disadvantaged schools**

While student populations in OECD countries have become more diverse, the teaching force has remained relatively homogeneous. In all OECD countries, teachers tend to be female, middle class, and from the majority population. Although neither race nor ethnicity determines the quality of a teacher, there is evidence to suggest that teachers from minority backgrounds can serve as powerful role models for their diverse students (OECD, 2010b; Sleeter and Thao, 2007). It has been argued that the self-perception of being a minority can lead to a better understanding of other peoples' cultures and of diversity itself (Kohl, 2009; OECD, 2010b). A number of programmes have been created to attract and retain minority teachers. In the United Kingdom, for example, the "Aspiring to Lead" programme is aimed at black and minority ethnic teachers in their second to fifth years of teaching who are interested in developing their leadership skills and knowledge (Burns, 2010). Similar programmes can be found in Canada, the United States and other OECD countries. These aim to build on the strengths of diverse teachers as well as provide role models to attract students from minority populations to enter the teaching profession.

### **Prepare teachers for work in disadvantaged schools**

Both initial teacher education and continuous professional development are critical to ensure that teachers acquire the skills and knowledge that enable them to respond to every classroom situation. This is particularly important for teachers in disadvantaged schools, as they are routinely confronted with heterogeneous groups of students (OECD, 2010b).

Teacher education programmes must be context-specific (Musset, 2010) and should prepare competent teachers for disadvantaged schools. This can mean:

- reinforcing initial teacher preparation programmes, and including content in the curricula for teachers specialising in disadvantaged schools and students (OECD, 2010b);<sup>7</sup>
- designing programmes that develop teachers' capacity to diagnose student problems and to understand the context of the schools in which they teach; and
- including practical field experience in disadvantaged schools as part of their teacher education, as evidence shows that teachers then perform better (Musset, 2010; OECD, 2010b).

For example, in Finland, all teachers are trained in diagnosing students with learning difficulties and in adapting their teaching to their students' varying learning needs and styles (OECD, 2011b).<sup>8</sup> Teacher education in Sweden includes specific preparation for teachers to teach students from diverse backgrounds. Where teachers don't receive this specific training, student outcomes may suffer. In Germany, for example, one of the weaknesses that may explain the country's relatively poor results on the PISA 2000 test was that the teachers were ill-equipped to teach students from an immigrant background (OECD, 2011b).

Another solution can be the availability of alternative pathways into the teaching profession. Some programmes specifically target disadvantaged schools, and aim to attract high academic achievers to teach in these schools by providing a direct route into them (Box 2.4).

Teachers working in disadvantaged schools also need training in communicating with parents and maintaining class environments that are conducive to learning. For example, the benefits of reducing class size may be undermined if teachers do not receive adequate training in effective pedagogical practices for smaller classes (Paul and Troncin, 2004).

### **Provide mentoring to teachers in disadvantaged schools**

Many countries offer induction programmes with mentoring schemes, as research shows that both new teachers and experienced teachers profit from them.<sup>9</sup> Induction and mentoring are particularly important in disadvantaged schools and may improve teacher effectiveness and increase retention of novice teachers. More experienced teachers can help new teachers to understand more quickly the main challenges of a particular school and its students, and help these teachers develop adequate pedagogical and relational strategies to respond to students' needs. Effective mentoring and induction programmes can also lower the attrition rate (Johnson and Birkeland, 2003) of new teachers and help them integrate better into the school staff. Mentors, themselves, also need good preparation programmes (Hobson et al., 2009) to assume their role effectively. Box 2.5 summarises promising examples of mentoring and induction programmes.



## BY THE NUMBERS

Since 2007, Teach For All has expanded to a world-wide network. Our oldest partners, Teach For America and Teach First (UK), demonstrate the potential for national scale and impact. Across the globe, we are fielding growing numbers of teachers and alumni who are reaching students each year.

 **500,000+**  
applications from  
top university  
graduates and young  
professionals

 **55,000+**  
teachers fielded

 **35,000+**  
alumni

 **5 million+**  
students reached

 **32** countries

### Box 2.4. Teach For All – A global network for expanding education opportunities

Teach For All collaborates with social entrepreneurs around the world who are interested in adapting its model for cultivating leadership in education. Today, partner organisations in 32 countries recruit outstanding university graduates and young professionals to commit two years to teach in high-need communities, invest in their development as teachers, and then foster their ongoing leadership as a force for change.

In the classroom, participants of Teach For All programmes support their students in meeting high expectations, cultivate their academic performance and character strength, and empower them with the self-advocacy skills that enable them to achieve their true potential. As alumni, participants go on to become teachers, principals, policy makers, and business and civic leaders who are committed to expanding education opportunities in their countries.

Alumni of Teach For All programmes are pioneering new solutions to educational inequity and becoming the system leaders needed to effect change. Around the world, in countries as diverse as Chile, the United Kingdom and India, alumni are founding innovative schools designed to put students whose socio-economic background

predicts one set of outcomes on a trajectory that enables them to fulfil their true potential. Alumni from Australia to Spain to the United States are developing social enterprises that enhance classroom education, such as digital learning platforms and student entrepreneurship initiatives, while others are taking on system and policy roles through which they are directly influencing the improvement of schools, curricula, standards and assessments.

Because there are remarkable similarities in the nature of the problem from place to place, the solutions can be shared across borders. Teach For All works to increase partners' progress and accelerate their collective impact by drawing on the network's knowledge base and the innovations continuously emerging from across the globe. Teach For All adds value by capturing and spreading knowledge, fostering direct connections and learning across the network, accessing global resources for the benefit of the whole, and contributing to the leadership development of staff, participants and alumni.

Since 2007, Teach For All has grown to support 32 national programmes while continuing to field interest from entrepreneurs in dozens of countries around the world. Based on this interest, Teach For All expects to grow to over 40 partners by 2015.

Source: Teach For All, [www.teachforall.org](http://www.teachforall.org).

### Box 2.5. Selected mentoring and induction programmes

**Japan:** Induction centres provide all new teachers with in-service training; in schools, teachers regularly observe other teachers and receive feedback on their own lessons. Teachers also complete an action research project that examines a classroom lesson.

**New Zealand:** Among secondary school teachers, non-contact time is prescribed in their employment agreement. The agreement provides an 80% full-time equivalent teaching load for a first-year, full-time teacher, and a 90% full-time equivalent teaching load for a second-year teacher before any non-teaching time is prescribed.

**Shanghai-China:** All new teachers participate in workshops, mentoring, peer observation; they also analyse lessons in groups with experienced teachers, join teaching research groups with more experienced teachers to discuss teaching techniques, and can be recognised for excellent teaching as novices through district-organised competitions.

**Switzerland:** All new teachers participate in collaborative practice groups led by trained, experienced teachers, have access to counselling, and take regular courses, both voluntary and mandatory, to improve their practice.

Source: Wong, Britton and Ganser (2005).



### Improve working conditions in disadvantaged schools

Evidence shows that most teachers are intrinsically motivated by the desire to help students learn, so they are more likely to stay in schools where they can work effectively (OECD, 2005). If they believe they can have an impact on their students' lives and they have resources available to make it happen, teachers will be engaged. Without supportive working conditions, teachers may feel ineffective and be more likely to move to other schools or quit teaching altogether. Support from principals, collaboration with colleagues and adequate resources play a significant role in teachers' decisions to stay in disadvantaged schools and therefore may help to retain teachers in these schools (Allensworth, Ponisciak and Mazzeo, 2009).

Improving working conditions in disadvantaged schools should also include providing time and facilities for meetings, common planning time, and additional support and resources. If teachers do not have the opportunity to work together, then instruction, assessment and curriculum implementation strategies are likely to be less effective.

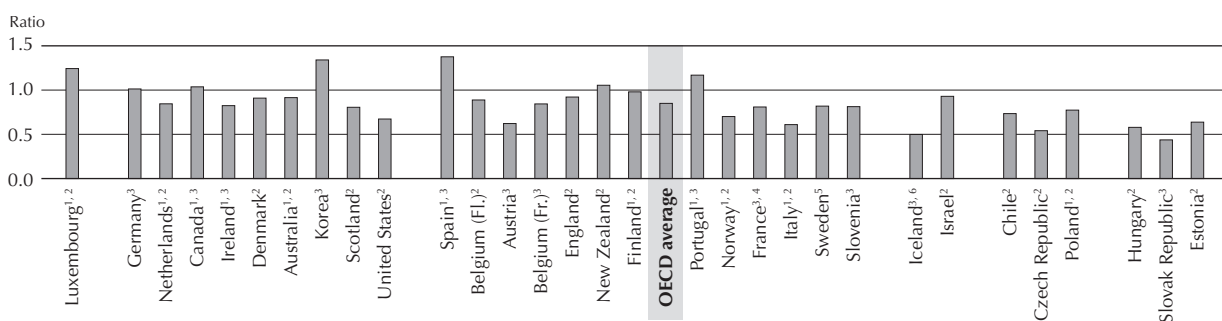
### Provide career and financial incentives to attract and retain teachers in disadvantaged schools

Teachers' salaries increased in real terms between 2000 and 2012 in virtually all OECD countries, but tended to remain below those of other university graduates (Figure 2.4). Statutory salaries for teachers with 15 years of experience are, on average, around 80% of full-time earnings for 25-64 year-olds with tertiary education, and 60% or below in the Czech Republic, Hungary, Iceland and the Slovak Republic.<sup>10</sup> As noted before, cross-country comparisons using PISA data show that relative pay levels of teachers are related to average student performance in education systems, after other system-level factors have been accounted for. At the same time, other aspects of teachers' employment conditions, such as vacations, relative job security and pensions, are often more generous than in other occupations. OECD data suggest that where teachers' salaries are low relative to professions requiring similar qualifications, teacher supply appears to be price-elastic: for a given percentage increase in teachers' relative salaries, the supply of potential teachers increases by a greater percentage. In countries where teachers' salaries are already relatively high, teacher supply tends to be less elastic: a given percentage increase in salary produces a lower percentage increase in supply (OECD, 2005).

Figure 2.4

#### Teachers' salaries in lower secondary education (2011)

Ratio of salary to earnings for full-time, full-year workers with tertiary education aged 25-64 (2011 or latest available year)



1. Year of reference 2010.

2. Ratio of average actual salary, including bonuses and allowances, for teachers aged 25-64 to earnings for full-time, full-year workers with tertiary education aged 25-64.

3. Ratio of statutory salary after 15 years of experience and minimum training to earnings for full-time, full-year workers with tertiary education aged 25-64.

4. Year of reference 2009.

5. Ratio of average actual salary for teachers aged 25-64, not including bonuses and allowances, to earnings for full-time, full-year workers with tertiary education aged 25-64.

6. Year of reference 2006.

Source: OECD, 2013b. Argentina: UNESCO Institute for Statistics (World Education Indicators Programme). Tables D3.1 and D3.2. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

Nevertheless, given the size of the teaching force, raising salaries across-the-board by even a few percentage points is very costly; and in many countries the problems of teacher shortage and high turnover of staff are felt most acutely in disadvantaged schools. Some countries are therefore targeting larger salary increases to schools with particular needs or teacher groups in short supply – such as teachers of mathematics, science, technology and vocational subjects – or have developed greater local flexibility in salary schemes, such as providing transportation assistance for teachers in remote areas.



Figure 2.5

Criteria determining base salary and additional payments for teachers in public institutions (2011)

	Experience			Criteria based on teaching conditions/responsibilities																						
	Years of experience as a teacher			Management responsibilities in addition to teaching duties			Teaching more classes or hours than required by full-time contract			Special tasks (career guidance or counselling)			Teaching in a disadvantaged, remote or high-cost area (location allowance)			Special activities (e.g. sports and drama clubs, homework clubs, summer school, etc.)			Teaching students with special educational needs (in regular schools)			Teaching courses in a particular field				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)		
OECD	Australia	-		-										▲							▲					
	Austria	-	▲			▲		▲			▲									△						
	Belgium (Fl.)	-																								
	Belgium (Fr.)	-													△											
	Canada	-				▲									▲											
	Chile	-				▲					▲				▲											
	Czech Republic	-	▲	△	-	▲	△	▲	△		▲	△						▲	△		-	▲	△			
	Denmark	-	▲	△	-	▲	△	▲	△		▲	△			▲	△			▲	△		▲	△		▲	△
	England	-	▲	△	-	▲	△								▲	△					-	▲	△	-	▲	△
	Estonia	-				▲	△	▲	△		-	▲	△		▲	△			▲	△		▲	△			
	Finland		▲		-			▲	△		▲	△			▲	△			▲	△		-			-	△
	France	-				▲	△	▲	△		▲	△			▲					△		-	▲			
	Germany	-			-																					
	Greece	-				▲			△		▲				▲											
	Hungary		▲			▲			△			△			▲							▲				▲
	Iceland	-	▲	△	-	▲	△	▲	△		-	▲	△						▲	△		-	▲	△		
	Ireland	-	▲	△	-	▲									▲											
	Israel	-			-	▲		-	▲		-	▲			▲				-	▲		-	▲			
	Italy	-					△		△				△		▲					△						
	Japan	-				▲		▲							▲					△		▲				
	Korea	-				▲			△							△						▲				▲
	Luxembourg	-							△				△									-				
	Mexico	-	▲	△	-	▲		-	▲		-	▲			▲										-	▲
	Netherlands	-	▲	△	-	▲	△	-	▲	△	-	▲	△		▲	△			▲	△		-	▲	△	-	▲
New Zealand	-				▲						▲			▲				▲			▲				▲	
Norway	-				▲			△		-	▲	△		▲				▲	△							
Poland	-		△				▲				▲			▲							▲					
Portugal	-				▲			△		▲											-					
Scotland	-													▲												
Slovak Republic	-	▲	△		▲		▲	△		▲	△							▲	△		-	▲	△			
Slovenia	-							△			△								△						△	
Spain	-				▲									▲												
Sweden	-							△																	-	
Switzerland	-							△				△								△						
Turkey	-						▲			▲								▲								
United States	-				▲									▲				▲							▲	
Other G20	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	-	▲		-	▲		-	▲		-	▲		-	▲							-	▲			-
	Russian Federation	-			-			-			-			-								-				-
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	

Criteria for:

- : Decisions on position in base salary scale

▲ : Decisions on supplemental payments which are paid every year

△ : Decisions on supplemental incidental payments

m : Data are not available

 Source: OECD, 2013b ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).



Teachers' views of disadvantaged schools as more difficult places to teach seem to have a major influence on their decisions to remain in or change schools (Hanushek, Kain and Rivkin, 2004). Competent and/or experienced teachers are an important resource for disadvantaged schools. In an effort to attract and recruit teachers to disadvantaged areas, specific subjects or geographic areas, many OECD countries have experience with financial incentive packages. Indeed, targeted financial incentives for teachers – salary increases and other types of additional financial payments – are often cited as important for addressing the unattractive working conditions in particular sets of schools. They can also be perceived as rewards for the more challenging work teachers undertake in these schools or offset changes in demands in competing occupations by making the teaching profession more attractive. Many countries provide substantial salary allowances for teaching in difficult areas, transportation assistance for teachers in remote areas, or additional payments for teachers with skills in short supply to help ensure that all schools are staffed with teachers of similar quality (Figure 2.5). This type of mechanism can be more cost efficient than across-the-board salary incentives, and can serve better the purpose, if they are well designed.

Another way of retaining teachers, particularly those who want to continue teaching, is to offer them a chance to progress in their careers without having to assume more administrative tasks. In Singapore, the “Education Service Professional Development and Career Plan” includes a career path for teachers who want to remain teachers. The Teaching Track allows teachers to remain in the classroom and advance to a new level of Master Teacher (OECD, 2013c). New Zealand is introducing differentiated career paths for teachers and school principals that are mirrored in pay structures (Box 2.6). The bottom line is that education authorities should promote the notion that it is a smart career move for teachers to remain working in these schools – and they can support that notion with tangible rewards.

#### **Box 2.6. Investing in educational success: New career pathways for teachers and school leaders in New Zealand**

To improve achievement for all students, New Zealand is introducing, from 2015, four new roles within schools: Executive Principal, Expert Teacher, Lead Teacher and Change Principal. The roles will provide teachers with opportunities for advancement within the classroom and embed a system-wide means of sharing expertise across schools. Each role will attract significant additional remuneration for a fixed term (apart from Lead Teachers, which are permanent roles) and help recognise the most effective teachers and principals. The roles are to be underpinned by professional standards.

Based on a new model of collaboration, communities of schools will work together to identify and strive to achieve specific achievement objectives. Each community of schools will have an Executive Principal and an allocation of Expert and Lead Teachers.

**Executive Principals** will be highly effective school leaders, appointed to provide leadership across a community of schools. They will support and mentor the other principals in these schools with responsibilities linked to specific objectives for student achievement.

**Expert Teachers** will be highly effective teachers, capable of providing professional practice leadership. They will work with teachers inside classrooms across their community of schools to help improve practice and student achievement.

**Lead Teachers** will be highly capable teachers, with a proven track record of accelerating achievement, who will act as a role model for teachers within their own schools and the other schools in their community of schools. Their classrooms will be open for other teachers, including beginning teachers, to observe and learn from their practice.

**Change Principals** will be exceptional school principals with proven capability in improving student and school performance in challenging situations. They will be employed to lift achievement in specific schools that are struggling. An additional allowance will be available to encourage highly effective principals to select schools based on the size of the challenge rather than the size of the school.

In addition to these new roles, all schools will be given additional funding to provide classroom **release time** for teachers to work with the expert and lead teachers on professional practice.

**Source:** New Zealand Ministry of Education.



In Chile, Denmark, England, Estonia, Finland, France, Ireland, Israel, Mexico, the Netherlands, Sweden, Turkey and the United States, additional payments typically have an impact on the teacher's base salary (in Sweden, the government only sets a minimum starting salary and pay is negotiated between the principal and the teacher; see Box 2.7). In Australia, Denmark, England, Estonia, Finland, France, Greece, Hungary, Ireland, Israel, Italy, Japan, the Netherlands, Portugal, Slovak Republic and Switzerland, they tend to take the form of extra payments offered yearly or a single time. Denmark, England, Finland, Korea, Mexico, the Netherlands, Sweden and the United States offer additional payments, usually on an annual basis, for teachers who teach in certain fields in which there are teacher shortages. In some cases, teachers receive additional payments to offset the high cost of living in certain areas.<sup>11</sup>

### Box 2.7. In Sweden, pay is now negotiated between the principal and the teacher

One of the most radical approaches to compensation systems has been implemented in Sweden, where the federal government establishes minimum starting salaries and leaves the decisions about individual teachers' salaries to be negotiated annually by the principal and the teacher. If the teacher requests assistance, the teachers' union can participate in the negotiation. In Sweden, the centrally bargained fixed-pay scheme for teachers was abolished in 1995 as part of a package designed to enhance local autonomy and flexibility in the school system. The government committed itself to raising teachers' salaries substantially over a five-year period, but on the condition that not all teachers received the same raise. This means that there is no fixed upper limit and only a minimum basic salary is centrally negotiated, along with the aggregate rise in the teacher-salary bill. Salaries are negotiated when a teacher is hired, and teacher and employer agree on the salary to be paid at the beginning of the term of employment. The individual negotiation involves: (1) teachers' qualification areas: teachers in upper secondary schools have higher salaries than teachers in compulsory schools or teachers in pre-schools; (2) the labour market situation: in regions where teacher shortages are more acute, teachers get higher salaries; the same occurs for certain subjects like mathematics or science; (3) the performance of the teacher: the collective central agreement requires that pay raises be linked to improved performance, allowing schools to differentiate the pay of teachers with similar tasks; and (4) the range of responsibilities of teachers: principals can reward teachers if they work harder and take up more tasks than generally expected.

There is now much greater variety in teachers' pay in Sweden, with those teachers in areas of shortage and with higher demonstrated performance able to negotiate a higher salary. The scheme is underpinned by a system of central government grants to ensure that low-income municipalities are able to compete effectively for teachers and other staff in the service sectors of the municipality. Sweden, with its individual teacher pay system introduced in 1995, provides an interesting example of a country that has attempted to combine a strong tradition of teacher unionism and consultative processes with opportunities for flexible responses and non-standardised working conditions at the school level. The system was at first strongly contested by unions and teacher organisations, but now enjoys an over 70% approval rate among unionised teachers.

**Source:** National Advisory Committee for the Ministry of Education and Science (2003).

The incentives need to be large enough to make a difference; their effectiveness depends partly on the level of teachers' salaries relative to other professions (Chevalier, Dolton and McIntosh, 2007). For instance Hanushek, Kain and Rivkin (2004) estimate that schools in the United States with disadvantaged, black or Hispanic students may need to pay 20% or even 50% more in salary than more advantaged schools to prevent teachers from leaving. At the same time, such mechanisms need to be well-designed in order to avoid labelling certain schools as "difficult" which may discourage students, teachers and parents (Field, Kuczera and Pont, 2007).<sup>12</sup>

In addition, financial incentives are only effective when teachers can be successful in disadvantaged schools, which implies providing appropriate support and development. Combining incentives and support for new teacher candidates may be most effective for improving teacher quality and student achievement in disadvantaged schools. For example, Korea offers an additional stipend and smaller classes to teachers who work in disadvantaged schools (Darling-Hammond, 2010; Sclafani and Tucker, 2006).



To ensure that teachers remain in disadvantaged schools, working there can be valued formally in the teacher career path (Box 2.8). Also, if certain schools are far less appealing for teachers, to attract *and* retain teachers, incentives can be integrated in the salary scale rather than be awarded as a one-time additional payment.

### **Box 2.8. Multiple incentives to attract excellent teachers to disadvantaged schools in Korea and in North Carolina**

In **Korea**, all teachers are held to high standards, which contributes to the country's high levels of performance and equitable distribution of teachers. Teachers are also highly respected, and they enjoy job stability, high pay, and positive working conditions, including high levels of teacher collaboration. Disadvantaged students in Korea are actually more likely than advantaged students to be taught by high-quality mathematics teachers, as measured by characteristics such as full certification, a mathematics or mathematic education major, and with at least three years of experience. Multiple incentives are offered to candidates who work in high-need schools. Incentives include additional pay, smaller classes, less instructional time, additional credit towards future promotion to administrative positions, and the ability to choose the next school where the teacher works.

In the United States, **North Carolina** enacted teaching quality improvement plans with five key features: increased initial certification requirements for teachers, higher salaries tied to meeting performance standards, new teacher mentoring, ongoing professional development for all teachers, and scholarships and loan "forgiveness" programmes targeted to recruit high-quality candidates to teach in disadvantaged schools. The state also offers incentives to attract higher-quality candidates and improve the effectiveness of new and continuing teachers, through rigorous initial training, mentoring and ongoing development. North Carolina offered a retention bonus (USD 1 800) for certified mathematics, science and special education teachers in high-poverty and low-performing schools. Overall, the bonus programme reduced teacher turnover by 17%, a savings of approximately USD 36 000 for each teacher who chooses not to or delays leaving or moving schools. Before the bonus was implemented, a third of teachers in these subjects were uncertified and many were concentrated in disadvantaged schools.

Source: OECD (2012).

Non-salary strategies, such as less class-contact time or smaller classes, are also worth considering for schools in difficult areas or that have particular education needs.

Last but not least, working conditions, including class-contact time and class size, and teacher satisfaction and retention are closely related (OECD, 2009). The lack of a positive work environment contributes to the high attrition rates in certain schools, especially disadvantaged schools. School leader support, collaboration with colleagues, and adequate resources play a significant role in teachers' decisions to stay in disadvantaged schools.

All this said, policies to encourage more people to enter teaching are unlikely to pay off if high-quality candidates find it hard to gain teaching posts. The best candidates, who are likely to have good job prospects outside teaching, may not be willing to wait in a lengthy queue or endure a succession of short-term teaching assignments in difficult schools. Well-structured and -resourced selection processes and induction programmes that ensure that the best candidates get the available jobs are therefore critical. Reducing the weight given to seniority in ranking applicants for teaching vacancies can also help to reduce the risk that new teachers will be disproportionately assigned to difficult schools.

### **Establish effective employment conditions**

The predominant model for teacher employment in OECD countries is "career-based" public service, in which entry is competitive, career development is extensively regulated and lifetime employment is largely guaranteed.<sup>13</sup> Where teachers are not commonly removed for unsatisfactory performance, the quality of teachers depends mainly on setting high standards of entering teacher-preparation programmes, on the quality of their initial preparation, and on the attention given to the quality of their preparation following their initial induction. Under career-based systems, the risk is that the quality of the teaching force depends excessively on getting initial recruitment and teacher education right, and that any improvement over time will take many years to affect most serving teachers. Moreover, career





advancement can become heavily dependent on adhering to organisational norms, which helps to ensure uniformity and predictability of service and a strong group ethos, but can make systems inflexible to change and ill-equipped to serve diverse needs in different settings.

In some countries, public servants are required to apply for specific positions by showing that their competencies match specific job requirements, rather than having a guaranteed career. However, this can increase recruitment and management costs, and make it harder to develop shared values and provide consistent service. Another approach has been to introduce more contract or temporary employment positions in parallel with career-based systems. This opens up possibilities for external recruitment, provides local managers with more scope for personnel decisions, and institutes management by objectives. However, the general experience in OECD countries is that it is not easy to graft features from a markedly different system onto a well-established employment model. Those in career-based systems who have met demanding entrance criteria and accepted relatively low starting salaries can feel threatened by a less-predictable future. Those accustomed to professional status and autonomy derived from their specialist skills may feel threatened by moves to institute system-wide standards. It is also difficult to align these employment models with the needs of specific schools. However, the OECD *Teachers Matter* study, PISA and the annual data collection conducted for *Education at a Glance* identify a number of trends in country reforms that are highlighted below.

### ***Recruit the best candidates***

Successful enterprises often report that personnel selection is the most important set of decisions that they make. In the case of teaching, the evidence suggests that all too often the selection process follows rules about qualifications and seniority that bear little relationship to the qualities needed to be an effective teacher. The sheer size of school systems in many countries means that the process of teacher selection is often highly impersonal, and it is hard for teachers to build a sense of commitment to the schools to which they are appointed – or for the schools to build a sense of commitment to them. Data from PISA suggest that many of the high-performing education systems have responded by giving schools more responsibility – and accountability – for teacher selection, working conditions and development.

The OECD *Teachers Matter* study describes how school leaders in many of the best-performing education systems actively seek out and develop the best possible teachers and, with personal interviews and visits to schools by candidates, seek to optimise the match between applicants and school needs. The study suggests that such approaches work best where parallel steps are taken to ensure that accountability, efficiency and equity are not jeopardised, for example by developing school leaders' skills in personnel management, providing disadvantaged schools with greater resources with which to recruit effective teachers, making information more accessible in the teacher labour market, and monitoring the outcomes of a more decentralised approach and adjusting accordingly. However, successful decentralisation of personnel management, and of school decision-making more generally, require that central and regional authorities help to ensure that teachers are adequately and equitably distributed throughout the country. It is also important to have independent appeals procedures to ensure fairness and protect teachers' rights.

### ***Offer flexibility...***

A desire for increased flexibility in the labour market, including to accommodate maternity and paternity leave, has led to increased part-time employment across many sectors of the economy, teaching among them. On average across OECD countries, about one in six teachers works on a part-time basis in public institutions at primary and lower secondary levels of education.<sup>14</sup> In some countries, part-time work is common among teachers: between one in five and one in three teachers in Australia, the Flemish Community of Belgium, Iceland and New Zealand work part time, as do more than one-third of teachers in Norway and Sweden, and nearly half the teachers in Germany (primary education) and the Netherlands.

In the majority of OECD countries, part-time employment opportunities depend upon a decision taken at the school level or by local authorities/government; in five of the countries with the largest proportions of part-time employment, the decision is taken at the school level. Schools recognise that their teaching and school organisation requirements change; and these countries have some flexibility in their teacher workforce that reflects these changing requirements.

There is considerable evidence that some beginning teachers, no matter how well prepared and supported, struggle to perform well on the job, or find that the job does not meet their expectations. This could be due to several factors at the teacher, classroom and school levels. On average for all countries that participated in the 2008 OECD Teaching and Learning International Survey (TALIS), new teachers reported spending 5% more time (13% for experienced teachers



compared with 18% for new teachers) on keeping order in the classroom. In one-third of the countries, new teachers said that they spend up to 20% of their time on classroom management and discipline. Obviously, this reduces the time spent on actual teaching and learning. New teachers spend 73% of their time on teaching, while experienced teachers said they spend 79% of their time on this core task. In addition, new teachers surveyed in TALIS 2008 reported significantly lower levels of self-efficacy than more experienced teachers. On average, this difference was statistically significant both across TALIS 2008 countries and in the Flemish Community of Belgium, Denmark, Estonia, Iceland, Ireland, Korea, Malaysia, Malta, Norway, Poland, the Slovak Republic and Turkey. Often, these differences were not quantitatively large, but they are important, given that they highlight differences in teachers' beliefs about their effectiveness in the classroom (Jensen et al., 2012).

### ***...and mobility***

Limited mobility of teachers between schools, and between teaching and other occupations, can restrict the spread of new ideas and approaches, and result in teachers having few opportunities for diverse career experiences. It can also lead to an inequitable distribution of teachers, where teachers do not move from the most favoured schools. In some cases, the lack of mobility means that some regions of the country might have teacher shortages while others have an oversupply of teachers. In some countries, providing incentives for greater mobility and removing barriers are important policy responses. In countries with different education jurisdictions, such as federal systems, the mutual recognition of teaching qualifications is crucial, as it ensures that entitlements to leave and retirement benefits move with the teacher. Recognising the skills and experience gained outside education is also an important means of encouraging greater career mobility among teachers, as is providing flexible re-entry pathways to the profession. International mobility of teachers is also a growing phenomenon, raising issues of recognition of qualifications, certifications and procedures for recruitment and induction.<sup>15</sup>

### ***Provide adequate information***

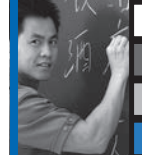
Given the large number of teachers and applicants involved in most school systems, it is often difficult and costly for employers to use extensive information when selecting candidates. It can be just as difficult for candidates for teaching positions to have precise information about the schools to which they apply, or even about broad trends in the labour market and the available vacancies. Such information gaps and limitations mean that many application and selection decisions are sub-optimal. The development of transparent and prompt systems to close the information gaps between teachers and schools is essential for an effectively functioning teacher labour market, especially where schools are more directly involved in teacher recruitment and selection. Some countries require all teaching vacancies to be posted, and create websites where the information is centralised or establish a network of agencies to co-ordinate and foster recruitment activities. Since imbalances in the teacher labour market can take a long time to be rectified, tools for monitoring and projecting teacher demand and supply under different scenarios can also help.

### ***Make teaching an attractive career***

Matching teacher demand and supply also relies on an environment that facilitates success and that encourages effective teachers to continue in teaching, particularly when the objective is to attract talented teachers to disadvantaged schools. There is concern in a number of countries that the rates at which teachers are leaving the profession are compounding school staffing problems and leading to a loss of teaching expertise. As alluded to earlier, teacher attrition rates tend to be higher in the first few years of teaching, while they decline the longer that teachers are in the profession, before they increase again as teachers approach retirement (OECD, 2005). This implies that large private and social costs are incurred in preparing some people for a profession that they soon find does not meet their expectations. It underlines the importance for beginning teachers to participate in structured induction programmes involving a reduced teaching load, trained mentor teachers in schools, and close partnerships with teacher-education institutions, and for school systems to ensure that the criteria and processes used to allocate teachers to schools are designed such that new teachers are not concentrated in the more difficult and unpopular locations.

Although attractive salaries are clearly important for making teaching more appealing and retaining effective teachers, the OECD *Teachers Matter* study concludes that policy needs to address more than pay:

- Teachers place considerable emphasis on the quality of their relations with students and colleagues, on feeling supported by school leaders, on good working conditions, and on opportunities to develop their skills. Some countries are therefore placing greater emphasis on teacher evaluations to support improvements in teaching practice. While these evaluations are designed mainly to enhance classroom practice, they provide opportunities for teachers' work to be recognised and celebrated, and help both teachers and schools to identify professional development priorities. They can also provide a basis for rewarding teachers for exemplary performance.



- Teaching careers can benefit from greater diversification, which can help meet school needs and also provide more opportunities and recognition for teachers. In most countries, opportunities for promotion and new responsibilities are generally limited for teachers who want to stay in the classroom. Promotions generally involve teachers spending less time in classrooms, and thus reduce one of the major sources of job satisfaction. Even for those who would like to take on more roles outside the classroom, in many countries those opportunities are limited. Some countries are moving to open more career opportunities for teachers, spurred, in part, by the greater variety of school roles that have been delegated significant decision-making responsibilities. Examples from OECD countries (Box 2.9) suggest that greater career diversity can be achieved by creating new positions associated with specific tasks and roles in addition to classroom teaching, which leads to greater horizontal differentiation; and through a competency-based teaching career ladder that recognises extra responsibilities, and that leads to greater vertical differentiation. In the latter, each stage is more demanding than the prior stage, involving more responsibilities, and is open to fewer people; however, it is accompanied by a significant rise in status and, often, compensation. The recognition that schools and teachers need to perform a greater range of tasks and assume more responsibility also calls for the creation of new roles, such as mentor of beginning and trainee teachers, co-ordinator of in-service education, and school project co-ordinator.
- Greater emphasis on school leadership can help address the need for teachers to feel valued and supported in their work. In addition, well-trained professional and administrative staff can help reduce the burden on teachers, better facilities for staff preparation and planning would help build collegiality, and more flexible working conditions, especially for more experienced teachers, would prevent career burnout and retain important skills in schools.

### Box 2.9. Providing greater career diversity in Australia, England and Wales, Ireland and Quebec (Canada)

In **Australia**, teachers typically have access to a career structure that involves two to four stages, with annual salary increments within each stage. The stages normally range from beginning teacher to experienced teacher, to experienced teacher with responsibility (leading teacher) or learning area or grade-level co-coordinator, assistant principal, principal, and regional/district office positions. Advancement from one stage to the next, especially at the higher levels, usually requires applying for widely advertised vacancies. As they move up the scale, teachers are expected to have deeper levels of knowledge, demonstrate more sophisticated and effective teaching, take on responsibility for co-curricular aspects of the school, assist colleagues and so on. By “leading teacher” stage, they are expected to demonstrate exemplary teaching, educational leadership, and the ability to initiate and manage change.

**Ireland** has introduced four categories of promotion posts: principal, deputy principal, assistant principal, and special duties teacher. Each has special management duties and receives both salary and time allowances. In addition to classroom teaching, assistant principals and special duties teachers have special responsibility for academic, administrative and pastoral matters, including timetabling arrangements, liaison with parents’ associations, supervising the maintenance and availability of school equipment, and so on. They are selected by a panel that consists of a principal, chair of the management board, and an independent external assessor. Over the course of their careers, about 50% of teachers can expect to receive one of these positions.

In **Quebec**, experienced teachers can work as mentors for student teachers. Experienced teachers coach and guide the student teachers and undertake specific training. They receive either additional pay or a reduction in classroom teaching responsibilities. About 12 000 teachers participate in the mentor programme. Some of these experienced teachers also have an opportunity to become co-researchers with university staff and to participate in collaborative studies on subjects such as teaching, learning, classroom management and student success or failure. In addition, experienced teachers may be released from some of their normal duties to provide support for less-experienced colleagues.

Source: OECD (2005).

As noted before, teachers are largely employed as public servants, and in a number of countries this is associated with tenured employment. While some may consider security of employment as an incentive to become a teacher, there may not be sufficient incentives or support systems for all teachers to continuously review their skills and improve



their practice, especially where there are only limited mechanisms for teacher appraisal and accountability. Tenured employment can also make it difficult to adjust teacher numbers when enrolments decline or curricula change; that may mean that the burden of adjustment falls on those who lack tenure, commonly those near the beginning of their careers. To avoid this, the licensing aspect of teaching should be emphasised and high-quality evaluation systems and professional development are in place to ensure that all teachers are engaged in professional practice that promotes student learning.

In some countries teachers need to renew their teaching certificates after a period of time, and often have to demonstrate that they have participated in on-going professional development and coursework to increase, deepen, and strengthen their knowledge. The basis for renewal can be as simple as an attestation that the teacher is continuing to meet standards of performance that are agreed throughout the teaching profession. Such systems must ensure an open, fair and transparent system of teacher appraisal, involving teaching peers, school leaders and external experts who are properly trained and resourced for these tasks – and who are themselves evaluated on a regular basis.

Underpinning these models is the view that the interests of students will be better served where teachers achieve employment security by continuing to do a good job, rather than by regulation that effectively guarantees their employment. Periodic reviews also provide the opportunity to recognise and acknowledge quality teaching. Some countries also have fair but speedy mechanisms to address ineffective teaching. Teachers in these countries have the opportunity and support to improve but, if they do not, they can be moved either into other roles or out of the school system.

### ***Provide professional development activities that address student diversity***

In many countries, the role and functioning of schools are changing – as is what is expected of teachers. They are asked to teach in increasingly multicultural classrooms. They must place greater emphasis on integrating students with special learning needs, both special difficulties and special talents, in their classes. They need to make more effective use of information and communication technologies for teaching. They are required to engage more in planning within evaluative and accountability frameworks. And they are asked to do more to involve parents in schools. No matter how good the pre-service education for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers.

Given the complexity of teaching and learning, high-quality professional development is necessary to ensure that all teachers are able to meet the needs of diverse student populations, effectively use data to guide reform, engage parents, and become active agents of their own professional growth. The development of teachers beyond their initial education can serve a range of purposes, including to:

- update individuals' knowledge of a subject in light of recent advances in the area;
- update individuals' skills and approaches in light of the development of new teaching techniques and objectives, new circumstances, and new educational research;
- enable individuals to apply changes made to curricula or other aspects of teaching practice;
- enable schools to develop and apply new strategies concerning the curriculum and other aspects of teaching practice;
- exchange information and expertise among teachers and others, e.g. academics and industrialists; and/or
- help weaker teachers become more effective.

Issues of professional development are not just relevant to the overall supply of quality teachers, but also to address specific issues of teacher shortages. This can be especially challenging in the case of disadvantaged schools, as students in these schools often have a wider range of abilities and needs. One in five teachers across countries – and more than one in three in Austria, Hungary, Korea and Slovenia – indicated that he or she needs professional development to address student discipline and behavioural issues. Again, this is particularly relevant for teachers in disadvantaged schools, as PISA shows that these schools typically have a poorer disciplinary climate. In addition, 13% of teachers – 25 % in Italy and in Ireland – reported that they do not feel prepared to teach in a multicultural setting. New Zealand offers tailored professional development activities to meet the needs of teachers who teach in multicultural classrooms (Box 2.10).

In seeking to meet teachers' professional development requirements, policy makers and practitioners need to consider both how to support and encourage participation and how to ensure that opportunities match teachers' needs. This needs



to be balanced with the financial costs and the cost in teachers' time. OECD research identifies several aspects as key to bridging the gap between the ideal learning environment and day-to-day practice (OECD, 2005):

- Well-structured and -resourced induction programmes can support new teachers in their transition to full teaching responsibilities before they obtain all the rights and responsibilities of full-time professional teachers. In some countries, once teachers have completed their pre-service education and begun their teaching, they begin one or two years of heavily supervised teaching. During this period, the beginning teacher typically receives a reduced workload, mentoring by master teachers, and continued formal instruction.
- Effective professional development needs to be ongoing, include training, practice and feedback, and provide adequate time and follow-up support. Successful programmes involve teachers in learning activities that are similar to those they will use with their students, and encourage the development of teachers' learning communities.
- Teacher development needs to be linked with wider goals of school and system development, and with appraisal and feedback practices and school evaluation.
- There is often a need to re-examine structures and practices that inhibit inter-disciplinary practice and to provide more room for teachers to take time to learn deeply, and employ inquiry- and group-based approaches, especially in the core areas of curriculum and assessment.

### Box 2.10. Tailoring professional development in New Zealand

The Building on Success initiative combines a number of programmes, including Te Kotahitanga, He Kāhano (a strategic school-based professional development programme with an explicit focus on improving culturally responsive leadership and teacher practices), Starpath (which aims to address New Zealand's comparatively high rate of educational inequality with Māori and Pacific students), and secondary literacy and numeracy projects. The key components of all these programmes will continue under the Building on Success initiative to deliver a targeted, tailored and flexible professional development approach that responds to the needs of individual schools.

The key components cover:

- Developing and embedding relationships, practices and learning environments that respond to and are respectful of Māori students' diverse identities, culture and language;
- Making effective use of evidence and data, including whānau voice, to develop a school change and improvement plan;
- Strategically identifying goals and targets that will contribute to achieving national goals and targets, especially for Māori students; and
- Developing subject and programme pathways that ensure that Māori students plan for and progress towards their goals and aspirations through learning qualifications and career pathways.

Source: New Zealand Ministry of Education.

In some countries, ongoing professional development already plays an important role. In the Chinese province of Shanghai, each teacher is expected to engage in 240 hours of professional development within five years of being hired. Singapore provides teachers with an entitlement of 100 hours of professional development per year to keep up with the rapid changes occurring in the world and to be able to improve their practice. More generally, results from TALIS show that, across countries, almost 90% of teachers participated in some form of professional development over an 18-month period and, on average, spent just under one day per month in professional development.<sup>16</sup> However, there is considerable variation in the incidence and intensity of teacher participation in professional development both across and within countries;<sup>17</sup> older teachers tend to engage in less professional development than younger ones. The types of development undertaken by teachers explain some of these variations. Countries in which a high percentage of teachers take part in "qualification programmes" or "individual and collaborative research" tend to have a higher average number of days of development, but only a small minority of teachers tends to participate in these activities.

Teachers consider better and more targeted professional development as important for improvement. TALIS data show that teachers' participation in professional development goes hand-in-hand with their mastery of a wider array of



methods to use in the classroom, even if it is not clear to what extent professional development triggers or responds to the adoption of new techniques. TALIS data also identify close associations between professional development and a positive school climate, teaching beliefs, co-operation among teachers and teachers' job satisfaction.

### **Educate the teacher educators**

Teacher educators are entrusted with the crucial task of preparing student teachers and teachers to face their classrooms. Yet there is surprisingly little knowledge of how teacher educators are, themselves, prepared. In many OECD countries, universities enjoy complete autonomy in developing teacher education programmes, from curriculum to practicum requirements and professional qualification standards. This makes it difficult to obtain comprehensive system-wide information, particularly assessment and evaluation data. Even in systems where teacher education programmes are centrally created and monitored, however, there is often a lack of data collection on how teacher educators are prepared for their roles. Within a given system, preparation can vary depending on the location of the programme (university, college, or other), the focus of the training (enhancing subject knowledge or building pedagogical and didactic competencies), and the elements required (a practicum phase during student teaching versus being placed directly into the classroom without prior practical experience in teaching).

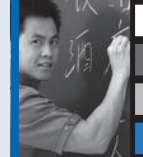
Yet across these different elements one thing remains relatively constant: very few teacher educators receive formal training in how to teach their student teachers. In fact, many teacher educators "have never received education and training in methodologies of teaching, co-operation and learning appropriate for adult learners (student teachers and professional teachers)" (Buchburger et al., 2000, p. 56). Even in university departments where professional advancement is dependent on published research, the study of teacher educator effectiveness and preparation is rare. There is thus often little in the way of materials to research.

When evaluating the role of teacher educators, it is also important to consider new and emerging trends in education. In an increasingly diverse world, teacher education programmes must focus on equipping teachers with the strategies they need to handle diverse student populations. Many believe this to be one of the most challenging tasks facing educators today (Milner and Smithey, 2003; Robinson and McMillan, 2006; OECD, 2010b). But scholars and experts know very little about teacher educators' ability to prepare teachers for multicultural education (Merryfield, 2000). Again, both the failure to acknowledge teacher educators' critical contribution to the education system and the lack of research on teacher educator preparation constitute a significant threat to the quality and sustainability of education systems.

A recent study on teacher educator programmes (Pollock et al., 2010) identifies three specific tensions experienced by teachers during both their training programmes and their classroom teaching time:

- *The tension between theoretical and practice-based knowledge.* When discussing difficult concepts, such as racism and diversity, teachers often struggle with how to put theory into practice. Instead of simply engaging multicultural issues in abstract and broad terms, Pollock et al. (2010) argue that teacher educator programmes should also focus on providing concrete suggestions and activities for classroom use.
- *The tension between individual efficacy and the overwhelming scope of the issue.* Teacher education programmes that focus primarily on broad structural patterns, like the "achievement gap", and "dropout rates", often overwhelm educators and make them feel that, as individuals, they play no role in counteracting social problems. Training should challenge teacher educators to question their own beliefs and attitudes about students, society and schools; and, more importantly, programmes should provide concrete skills to be used in the classroom, to help teachers feel individually efficacious in serving diverse populations.
- *The tension between the pursuit of personal development and professional development.* Many teacher educators argue that they must undergo personal development work to rid themselves of "worldviews" and "mindsets" that develop through personal experience before they can develop professional tactics for classroom use. Because personal development is an ongoing process of indefinite duration, teacher educator training programmes should begin with this focus explicitly and gradually integrate professional development skills training.

Although the study does not claim that teachers most committed to ongoing inquiry serve their students best, it does suggest that these teachers would serve their students better than teachers uninspired about their work's potential. When it comes to addressing diversity issues, teacher educator training programmes should explicitly target the three tensions mentioned above as a means of initiating self-analysis and ongoing growth.



## Notes

1. Among OECD countries, the correlation is 0.32.
2. The correlation is -0.22 among 17 countries and economies whose per capita GDP is less than USD 20 000.
3. In 16 OECD countries, more teachers are allocated to disadvantaged schools to reduce the student-teacher ratio, with the objective of moderating disadvantage (OECD, 2010b). This is particularly the case in Belgium, Estonia, Iceland, Ireland, Italy, Japan, Korea, the Netherlands, Portugal and Spain. Only in Israel, Slovenia, Turkey and the United States are disadvantaged schools characterised by a higher student-teacher ratio.
4. High turnover can have a negative effect on student achievement since teachers may leave before they gain the experience they need to be more effective with students (Rivkin, Hanushek and Kain, 2005).
5. Caution is required in interpreting these results. School principals across countries and economies, and even within countries and economies, may have different expectations and benchmarks in determining whether there is a lack of qualified teachers. Nonetheless, their responses provide valuable information that can be used to assess whether schools or school systems are providing their students with adequate numbers and quality of teachers.
6. This is one of the reasons an explicit “pupil premium” for disadvantaged students was introduced (OECD, 2011a). However, the additional funds are considered to be relatively low compared to other countries (the Netherlands and Chile), and it is unclear whether they would be sufficient to cover the additional costs of enrolling disadvantaged students.
7. Examples of diversity content in new teacher education curricula at four Spanish universities are included in Chapter 10 in the report *Educating Teachers for Diversity* (OECD, 2010b).
8. In Québec and in Manitoba, all teachers are required to take six credit hours in special education for students with exceptional needs during their pre-service training.
9. Induction is normally understood as a programme designed to support new teachers. Mentoring is usually part of the induction programme. Mentoring can be defined as the one-to-one support of a novice or less-experienced practitioner (mentee) by a more experienced practitioner (mentor), designed primarily to assist in developing the mentee’s expertise and facilitating their induction into the culture of the profession (in this case, teaching) and into the specific local context (here, disadvantaged school) (Hobson et al., 2009).
10. In 2009, primary teachers’ salaries amounted to, on average, 77% of full-time, full-year earnings for 25-64 year-olds with tertiary education, lower secondary teachers’ salaries amounted to 81% of those earnings, and upper secondary teachers’ salaries amounted to 85% of those earnings. The lowest relative teachers’ salaries, compared to the salaries of other professionals with comparable education, are found in the Slovak Republic at all levels of education, and in Hungary and Iceland for primary and lower secondary school teachers, where statutory salaries for teachers with 15 years of experience are 50% or less of what a full-time, full-year worker with a tertiary education earns, on average. Relative salaries for teachers in primary and lower secondary education are highest in Korea, Portugal and Spain, where teachers earn more than the average salary of a worker with a tertiary education. In upper secondary education, teachers’ salaries are at least 10% higher than those of comparably educated workers in Belgium, Luxembourg and Portugal, and up to 32% higher in Spain (for data, see OECD, 2011c, Table D3.2).
11. Salaries in London, for example, exceed those in the rest of England by about 12% (Ladd, 2007).
12. In North Carolina, for example, labelling schools as “low-performing” made it harder to recruit and retain qualified teachers. Both experienced and novice teachers were about 25% more likely to leave schools labelled low-performing compared to teachers in schools with similar student performance that were not so labelled. There is evidence of the same phenomenon in France.
13. For data, see Figure IV.3.3a in OECD (2010c), *PISA 2009 Results: What Makes a School Successful? Resources, Policies and Practices (Volume IV)*, PISA, OECD Publishing.
14. For data, see Indicator D3 in the 2007 edition of the OECD publication *Education at a Glance*.
15. See, for example, the Commonwealth Teachers Recruitment Protocol of 2004, developed at the request of the 15th Conference of Commonwealth Education Ministers, Edinburgh, United Kingdom, 2003.
16. TALIS asked teachers about their professional development activities during the 18 months prior to the survey. This period of time was chosen in order to cover activities over almost two school years in order to give a more representative picture and reduce possible distortions due to unusually busy or lean periods of development, and to ensure a manageable period for teachers’ recall. Teachers were first asked to indicate whether or not they had participated in each of the following activities: (1) courses/workshops (e.g. on subject matter or methods and/or other education-related topics); (2) education conferences or seminars (at which teachers and/or researchers present their research results and discuss education problems); (3) qualification programme (e.g. a degree programme); (4) observation visits to other schools; (5) participation in a network of teachers formed specifically for the professional development of teachers; (6) individual or collaborative research on a topic of professional interest; and (7) mentoring and/or peer observation and coaching,



as part of a formal school arrangement. Teachers were able to indicate participation in multiple activities. TALIS then asked teachers how many days of professional development they had attended in the 18 months prior to the survey and how many of these days were compulsory (for details, see OECD [2009]).

17. The intensity of teacher participation in professional development varies considerably across countries, with Korea and Mexico seeing teachers participating, on average, over 30 days in 18 months, twice the average rate. Within-country variation in the intensity of professional development can also be high, most notably in Italy, Mexico, Korea, Poland and Spain (for data see OECD [2009]).

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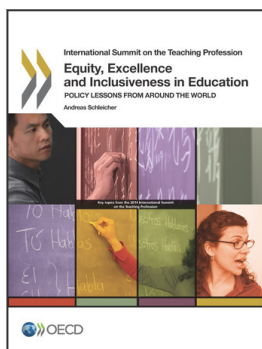


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