



### Chapter 3

## MATCHING TEACHER DEMAND AND SUPPLY

Many education systems face a daunting challenge in recruiting high-quality graduates as teachers, particularly in shortage areas, and retaining them once they are hired. How have countries succeeded in matching their supply of high-quality teachers to their needs? How have they prepared teachers for priority subjects or locations? Competitive compensation and other incentives, career prospects and diversity, and giving teachers responsibility as professionals are important parts of strategies to attract the most talented teachers to the most challenging classrooms. Active recruitment campaigns can emphasize the fulfilling nature of teaching as a profession, and seek to draw in groups that might not otherwise have considered teaching. Where teaching is seen as an attractive profession, its status can further be enhanced through selective recruitment that makes teachers feel that they will be going into a career sought after by accomplished professionals. All this demands that initial education prepares new teachers to play an active role in designing and delivery of education, rather than just following standardized practices.

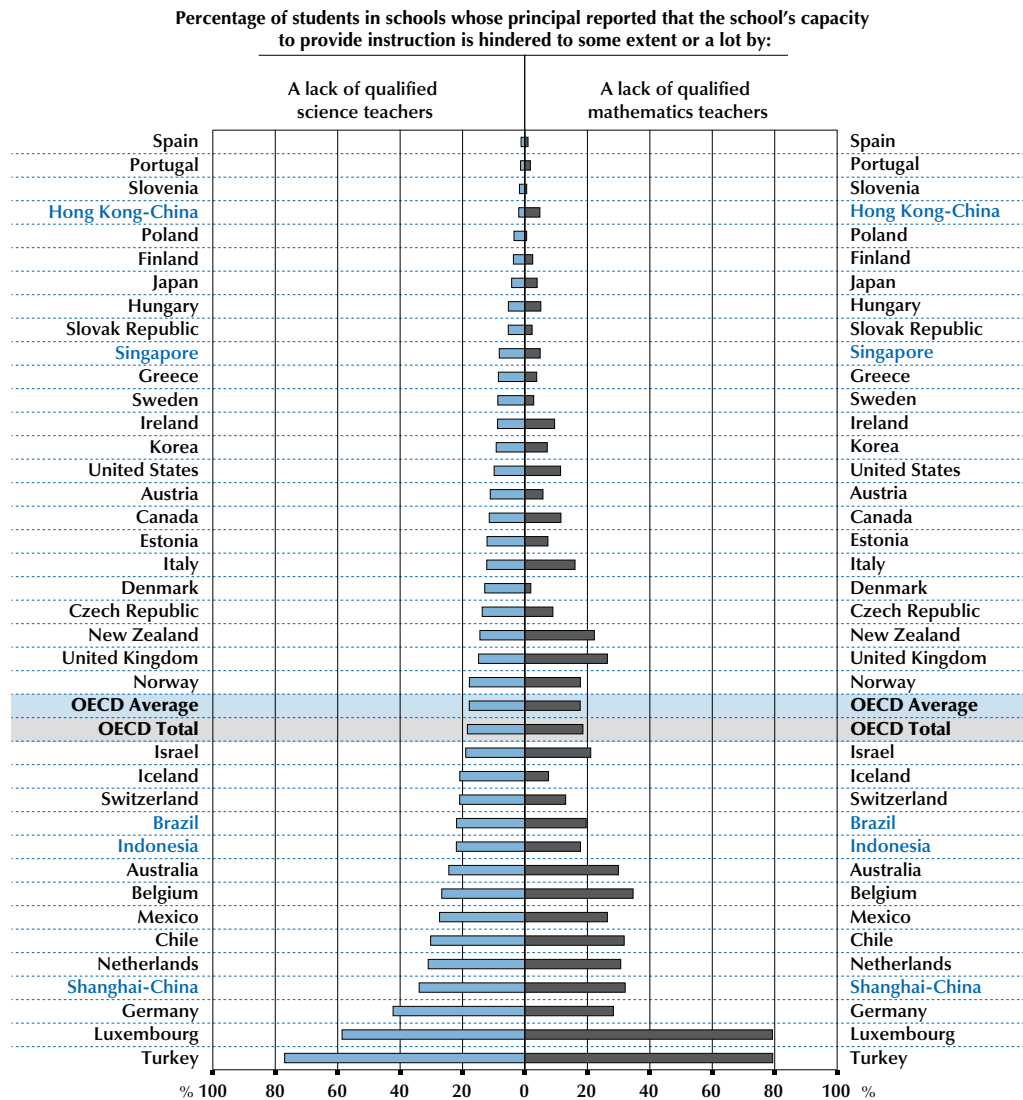


### THE CHALLENGE OF TEACHER SHORTAGES

Recruiting high-quality graduates as teachers, especially in shortage areas, and retaining them once they are hired is a challenging task for education systems. In the PISA 2009 assessment, an average of close to 20% of 15-year-olds were enrolled in schools whose leaders reported that a lack of qualified mathematics or science teachers was hindering instruction in their schools. In some countries over half of school leaders reported that this was a problem (see Figure 3.1).

Figure 3.1

#### Perceived shortage of mathematics and science teachers



Source: OECD, PISA 2009 Database.

A shortage of teachers can imply that teachers are overloaded with instructional and administrative work, unable to meet student needs, and sometimes required to teach subjects outside their expertise. School systems often respond to teacher shortages in the short-term by some combination of lowering 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 allocated; or increasing class sizes.<sup>1</sup> Such responses, even if they ensure that classrooms are not left without a teacher, raise concerns about the quality of teaching and learning.



Figure 3.2

### Relationship between school average socio-economic background and school resources

	Disadvantaged schools are more likely to have more or better resources, in <b>bold</b> if relationship is statistically different from the OECD average
	Advantaged schools are more likely to have more or better resources, in <b>bold</b> if relationship is statistically different from the OECD average
	Within country correlation is not statistically significant

		Simple correlation between the school mean socio-economic background and:					
		Percentage of full-time teachers	Percentage of certified teachers among all full-time teachers	Percentage of teachers with university-level degree (ISCED 5A) among all full-time teachers	Index of quality of school's educational resources	Computer/student ratio	Student/teacher ratio <sup>1</sup>
OECD	Australia	-0.21	-0.05	0.02	<b>0.31</b>	0.01	-0.07
	Austria	-0.13	<b>0.21</b>	<b>0.64</b>	0.03	-0.05	-0.07
	Belgium	<b>-0.18</b>	0.05	<b>0.58</b>	0.02	<b>-0.23</b>	<b>0.66</b>
	Canada	0.01	<b>0.14</b>	0.03	0.18	-0.05	0.09
	Chile	-0.04	-0.01	<b>0.25</b>	<b>0.35</b>	<b>0.32</b>	-0.05
	Czech Republic	<b>-0.32</b>	<b>0.29</b>	<b>0.37</b>	0.00	0.15	0.08
	Denmark	0.01	-0.17	0.16	0.04	-0.08	<b>0.27</b>
	Estonia	0.14	0.00	0.00	0.10	-0.09	<b>0.43</b>
	Finland	<b>0.17</b>	-0.01	-0.01	0.13	-0.01	0.08
	France	w	w	w	w	w	w
	Germany	-0.15	-0.02	-0.02	0.06	-0.18	<b>0.28</b>
	Greece	-0.11	0.06	0.24	0.16	-0.12	0.25
	Hungary	<b>-0.33</b>	0.07	0.07	0.11	<b>-0.20</b>	0.02
	Iceland	<b>0.20</b>	<b>0.39</b>	<b>0.30</b>	<b>0.06</b>	<b>-0.41</b>	<b>0.40</b>
	Ireland	0.12	-0.10	-0.08	0.16	-0.03	<b>0.49</b>
	Israel	-0.08	-0.06	0.20	0.25	0.08	<b>-0.20</b>
	Italy	-0.06	<b>0.16</b>	0.13	0.15	<b>-0.19</b>	<b>0.50</b>
	Japan	-0.14	0.04	0.20	0.17	<b>-0.34</b>	<b>0.38</b>
	Korea	-0.14	0.00	-0.03	-0.04	<b>-0.53</b>	0.30
	Luxembourg	<b>-0.16</b>	<b>-0.01</b>	<b>0.39</b>	0.13	<b>-0.13</b>	<b>0.28</b>
	Mexico	-0.09	<b>-0.13</b>	-0.04	<b>0.59</b>	<b>0.14</b>	0.03
	Netherlands	<b>-0.34</b>	<b>-0.12</b>	<b>0.62</b>	0.06	-0.16	<b>0.38</b>
	New Zealand	-0.04	0.08	0.07	0.16	-0.02	0.11
	Norway	-0.05	0.04	0.15	0.14	-0.02	0.19
	Poland	-0.02	0.03	-0.05	0.06	-0.16	0.01
	Portugal	<b>0.14</b>	-0.05	0.04	0.24	-0.02	<b>0.39</b>
	Slovak Republic	-0.09	<b>0.28</b>	<b>-0.21</b>	-0.05	-0.06	0.00
	Slovenia	<b>0.46</b>	<b>0.32</b>	<b>0.55</b>	0.13	<b>-0.21</b>	<b>-0.25</b>
	Spain	<b>-0.29</b>	m	m	0.10	<b>-0.16</b>	<b>0.45</b>
	Sweden	0.05	0.01	-0.04	0.26	<b>0.13</b>	0.12
	Switzerland	-0.11	-0.07	0.24	0.10	0.03	0.06
	Turkey	0.12	-0.04	0.04	0.04	-0.06	<b>-0.26</b>
	United Kingdom	<b>-0.36</b>	0.05	-0.03	0.00	0.01	-0.10
	United States	<b>-0.42</b>	-0.24	0.10	0.22	0.06	<b>-0.17</b>
OECD average	-0.07	0.04	0.15	0.13	-0.08	0.15	
Partners	Albania	<b>-0.25</b>	0.00	<b>0.38</b>	<b>0.44</b>	<b>0.24</b>	0.15
	Argentina	0.13	0.13	0.22	<b>0.51</b>	<b>0.21</b>	-0.02
	Azerbaijan	0.05	-0.06	<b>0.44</b>	0.19	0.17	0.23
	Brazil	-0.03	0.10	0.03	<b>0.52</b>	<b>0.25</b>	<b>-0.20</b>
	Bulgaria	-0.08	0.17	0.17	0.09	-0.17	0.21
	Colombia	<b>-0.24</b>	<b>-0.16</b>	-0.08	<b>0.53</b>	<b>0.19</b>	-0.14
	Croatia	0.09	0.02	<b>0.28</b>	0.09	0.17	0.32
	Dubai (UAE)	<b>0.32</b>	<b>0.61</b>	<b>-0.01</b>	<b>0.34</b>	<b>0.47</b>	<b>-0.27</b>
	Hong Kong-China	-0.19	-0.06	0.12	0.06	0.04	0.02
	Indonesia	<b>0.24</b>	<b>0.27</b>	0.16	<b>0.44</b>	0.14	<b>-0.16</b>
	Jordan	-0.04	0.00	-0.02	0.26	0.05	0.06
	Kazakhstan	<b>0.23</b>	0.04	<b>0.34</b>	0.21	-0.12	<b>0.44</b>
	Kyrgyzstan	<b>0.17</b>	0.08	<b>0.35</b>	0.27	<b>0.13</b>	0.27
	Latvia	<b>0.19</b>	-0.03	0.19	0.14	0.00	<b>0.38</b>
	Liechtenstein	<b>-0.15</b>	0.02	<b>0.57</b>	<b>-0.91</b>	<b>0.79</b>	<b>0.70</b>
	Lithuania	<b>0.21</b>	0.09	0.19	-0.02	<b>-0.49</b>	0.21
	Macao-China	<b>0.11</b>	<b>0.05</b>	<b>-0.18</b>	<b>0.26</b>	<b>0.22</b>	<b>0.17</b>
	Montenegro	0.07	<b>0.32</b>	<b>0.38</b>	<b>-0.11</b>	<b>-0.19</b>	<b>0.33</b>
	Panama	<b>-0.51</b>	<b>-0.47</b>	-0.13	<b>0.68</b>	<b>0.38</b>	0.03
	Peru	-0.21	0.08	<b>0.48</b>	<b>0.53</b>	<b>0.46</b>	-0.02
	Qatar	<b>0.03</b>	<b>-0.04</b>	<b>-0.07</b>	<b>0.23</b>	<b>0.19</b>	<b>0.11</b>
	Romania	0.05	0.10	0.11	0.20	-0.07	-0.02
	Russian Federation	<b>0.18</b>	0.08	0.31	<b>0.26</b>	0.02	<b>0.29</b>
	Serbia	0.10	0.06	0.06	-0.01	0.00	0.11
	Shanghai-China	<b>0.14</b>	0.13	<b>0.32</b>	0.16	-0.10	<b>-0.13</b>
	Singapore	-0.13	0.00	<b>0.22</b>	<b>0.10</b>	<b>-0.18</b>	<b>-0.14</b>
	Chinese Taipei	0.12	<b>0.34</b>	0.29	0.19	-0.04	-0.07
	Thailand	0.07	0.06	0.16	<b>0.39</b>	0.00	-0.02
	Trinidad and Tobago	<b>-0.19</b>	<b>0.09</b>	<b>0.56</b>	0.12	<b>0.08</b>	<b>0.38</b>
	Tunisia	-0.06	0.00	0.20	0.13	0.15	-0.02
Uruguay	-0.01	<b>0.27</b>	0.08	<b>0.33</b>	<b>0.30</b>	0.13	

1. In contrast to the other columns, negative correlations indicate more favorable characteristics for advantaged students.

Source: OECD, PISA 2009 Database, Table II.2.2.



Looking at the ways in which teachers are distributed among socio-economically more disadvantaged and advantaged schools provides another perspective on the issue of teacher shortages. With the exception of Turkey, Slovenia, Israel and the United States – students in disadvantaged schools tend to have better access to full-time teachers as mirrored in more favorable student/teacher ratios (Column 1 in Figure 3.2). At the same time disadvantaged schools tend to have fewer teachers with advanced university qualifications than socio-economically advantaged schools (Column 3 in Figure 3.2) indicating real differences in quality of teaching in more disadvantaged schools

All in all, teacher shortage is a significant problem in many of the summit countries, although its levels vary significantly across educational levels, subjects and schools. An analysis of teacher preferences for schools also shows that the least favored schools are schools in remote settings and schools with higher proportions of disadvantaged children and children from ethnic and minority language backgrounds.<sup>2</sup> A higher concentration of lesser qualified or novice teachers in schools serving disadvantaged students can have a negative impact on student performance, further diminishing their chances of success. In short, while the impact of effective teaching on students with lower performance levels tends to be greatest, these are often the least likely to receive it.<sup>3</sup> Matching teacher demand is therefore particularly important for students in disadvantaged schools who find themselves in classes with the least experienced and least qualified teachers.

The issue of teacher demand and supply is both complex and multi-dimensional, as it reflects several 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 distribute teachers in equitable and efficient ways, and how to retain qualified teachers over time.<sup>4</sup> Common to most education systems that demonstrate high performance and very low between-school variation in performance in PISA is that they attract teachers equitably across the school system, including to hard-to-staff schools. This chapter examines policies pursued to achieve this.

### **MAKING TEACHING AN ATTRACTIVE CAREER CHOICE**

PISA shows that the best-performing education systems provide most of their students with the kind and quality of education that average performers offer only to a small elite. This implies that these systems provide excellent teaching for all students. In order to achieve this, school systems often aim to recruit their teachers from the same pool from which all their top professionals are recruited. But people who see themselves as candidates for the professions, and are attracted to the working conditions enjoyed by professionals, may not find what they're looking for in schools organized in prescriptive work environments that use bureaucratic management to direct their work.

Many education systems have therefore transformed the work organization in their schools by replacing administrative forms of management with professional norms that provide the status, pay, professional autonomy and accountability, and the high-quality training and responsibility that go with professional work. They also tend to provide effective systems of social dialogue, and appealing forms of employment that balance flexibility with job security, and grant sufficient authority for schools to manage and deploy their human resources. In many education systems, these aspects tend to be the focus of explicit national or regional policies.

Even where recruiting the most highly qualified graduates remains a challenge, policy makers tend to acknowledge that teaching quality is strongly affected by the pool of talent from which teachers are chosen. People are attracted to certain professions by some combination of the occupational status, work environment, sense of personal contribution and the financial rewards associated with a given profession. Teacher policy needs to examine these aspects closely, particularly in light of teacher shortages that many advanced economies already face and that will grow in the near future as large numbers of teachers reach retirement age.<sup>5</sup> And, as noted before, even where general teacher supply and demand are in balance, many countries face shortages of specialist teachers and shortages in schools serving disadvantaged or isolated communities, most notably in the fields of mathematics and science.

Policy responses are needed at two levels. The first concerns the nature of the teaching profession itself and teachers' work environment. These policies seek to improve the profession's general status and competitive position in the job market and are the focus of this paper. The second involves more targeted responses and incentives for particular types of teacher shortage, which recognizes that there is not a single labor market for teachers, but a set of them, distinguished by school type and characteristics, such as subject specialization. An important consideration here is that the responsiveness to incentives depends on the characteristics of individuals. For example, individuals



in certain academic disciplines, such as science, and teachers with higher academic credentials are less likely to be attracted to teaching in the first place, and are less likely to return to teaching once they leave. Women often value the potential flexibility that teaching can offer, so improved leave provisions, opportunities for part-time employment and career breaks, and child care are likely to be particularly important to their career choices.<sup>6</sup> Surveys of what teachers themselves value about their work also provide important insights into what needs to be emphasized in recruitment: the social relevance of teaching; working with young people; creativity; autonomy; and collaboration with colleagues.

It is important to note that the status of the teaching profession is not just a static attribute of culture but has, in some countries, changed significantly. As shown in the boxes on Singapore (Box 3.1) and Finland (Box 3.2), vigorous intervention that directly addresses the attractiveness of teaching compared to other graduate professions can make a big difference. Interesting approaches towards recruitment pursued by some countries include:

- promotional programs targeted at groups that are “non-traditional” entrants to teaching;
- reinventing selection criteria for new teachers, with the aim of identifying applicants with the greatest potential, including through interviews, by preparing lesson plans, and by demonstrating teaching skills;
- changing the role of seniority in determining teacher assignments and creating incentives to attract experienced teachers to hard to staff schools, in order to avoid situations where new teachers are assigned to the more difficult and unpopular schools, further disadvantaging students there as well as potentially damaging teachers’ career development; and
- for desirable teaching jobs, giving greater weight to qualities that are harder to measure, such as enthusiasm, commitment and sensitivity to students’ needs, where these are seen to be more directly related to the quality of teaching and learning than the traditional emphases on qualifications and years of experience.

### Box 3.1 Throughout Singapore, teaching talent is identified and nurtured rather than being left to chance

Singapore is notable for its comprehensive approach to identifying and nurturing teaching talent. It has developed a comprehensive system for selecting, training, compensating and developing teachers and principals, thereby creating tremendous capacity at the point of education delivery.

- **Recruitment:** Prospective teachers are carefully selected from the top one-third of the secondary school graduating class, by panels that include current principals. Strong academic ability is essential, as is commitment to the profession and to serving diverse student bodies. Prospective teachers receive a monthly stipend that is competitive with the monthly salary for fresh graduates in other fields. They must commit to teaching for at least three years. Interest in teaching is seeded early through teaching internships for high school students; there is also a system for mid-career entry, which is a way of bringing real-world experience to students.
- **Training:** All teachers receive training in the Singapore curriculum at the National Institute of Education (NIE) at Nanyang Technological University. They take either a diploma or a degree course depending on their level of education at entry. There is a close working relationship between NIE and the schools, where all new teachers are mentored for the first few years. As NIE’s primary purpose is training all Singapore teachers, there are no divisions between arts and sciences and education faculties. Thus, according to Lee Sing Kong, the conflicting priorities that plague many Western teacher education programs are less significant and there is a stronger focus on pedagogical content. NIE has put in place a matrix organizational structure whereby program offices (e.g. Office for Teacher Education) liaise with individual academic groups in drawing up initial teacher training programs. This means that these programs are designed with the teacher in mind, rather than to suit the interests of the various academic departments. As such, there is a stronger focus on pedagogical content and greater synergies among modules within each program.

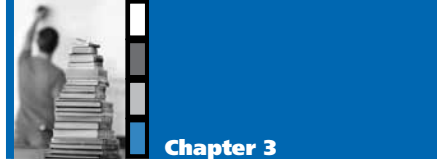
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- **Compensation:** The Ministry of Education keeps a close watch on occupational starting salaries and adjusts the salaries for new teachers to ensure that teaching is seen as being as equally attractive as other occupations for new graduates. In effect, the country wants its most qualified candidates to regard teaching as just as attractively compensated as other professions. This is in line with findings from PISA where relative levels of teacher pay tends to be associated with higher system-level performance, other factors held equal.<sup>7</sup> Teacher salaries do not increase as much over time as those in private sector jobs, but there are many other career opportunities within education for teachers. Teaching is also regarded as a 12-month position. There are retention bonuses and high-performing teachers can also earn significant amounts in performance bonuses.
- **Professional development:** In recognizing the need for teachers to keep up with the rapid changes occurring in the world and to be able to constantly improve their practice, they are entitled to 100 hours of professional development per year. This may be undertaken in several ways. Courses at the National Institute of Education focus on subject matter and pedagogical knowledge and lead towards higher degrees or advanced diplomas. Much professional development is school-based, led by staff developers. Their job is to identify teaching-based problems in a school, for example, with a group's mathematics performance; or to introduce new practices such as project-based learning or new uses of ICT. Each school also has a fund through which it can support teacher growth, including developing fresh perspectives by going abroad to learn about aspects of education in other countries. Teacher networks and professional learning communities encourage peer-to-peer learning and the Academy of Singapore Teachers, was opened in September 2010 to further encourage teachers to continuously share best practices.
- **Performance appraisal:** Like every other profession in Singapore, teachers' performance is appraised annually by a number of people and against 16 different competencies. Included in this Enhanced Performance Management System is teachers' contribution to the academic and character development of the students in their charge, their collaboration with parents and community groups, and their contribution to their colleagues and the school as a whole. Teachers who do outstanding work receive a bonus from the school's bonus pool. This individual appraisal system sits within the context of great attention to the school's overall plan for educational excellence, since all students in Singapore have multiple teachers, even in primary school.
- **Career development:** Throughout Singapore, talent is identified and nurtured rather than being left to chance. After three years of teaching, teachers are assessed annually to see which of three career paths would best suit them – master teacher, specialist in curriculum or research or school leader. Each path has salary increments. Teachers with potential as school leaders are moved to middle management teams and receive training to prepare them for their new roles. Middle managers' performance is assessed for their potential to become vice principals, and later, principals. Each stage involves a range of experience and training to prepare candidates for school leadership and innovation.
- **Leadership selection and training:** Singapore has a clear understanding that high-quality teaching and strong school performance require effective leaders. Singapore's approach to leadership is modeled on that found in large corporations. The key is not just the training program, but the whole approach to identifying and developing talent. This differs from the US or UK approach, for example, in which a teacher can apply to train as a principal or school head, and then apply for a position in a school. In Singapore, young teachers are continuously assessed for their leadership potential and given opportunities to demonstrate and learn, for example, by serving on committees, then being promoted to head of department at a relatively young age. Some are transferred to the ministry for a period. After these experiences are monitored, potential principals are selected for interviews and go through leadership situational exercises. If they pass these, then they go to NIE for six months of executive leadership training, with their salaries paid. The process is comprehensive and intensive and includes an international study trip and a project on school innovation. Only 35 people per year are selected for the executive leadership training. Asked why Singapore uses the "select then train" rather than the "train then select" model, Professor Lee Sing Kong said that while the US/UK approach is feasible, it carries a higher risk. Singapore is very confident that they consistently have the best possible leaders for their schools and that there is a wide range of inputs into their selection. Principals are transferred between schools periodically as part of Singapore's continuous improvement strategy.

Source: OECD (2011a).





Research shows that people who have close contact with schools – such as parents who assist in classrooms, or employers who have students in workplace learning programs – often have much more positive attitudes towards teachers than people with little direct contact. This suggests that building stronger links between the schools and the community can also help to enhance the status of teaching. Teachers and school leaders can play a key role in strengthening connections with families and communities as part of effective learning. This can involve eliciting greater support from stakeholders with traditional expectations about teaching by communicating current knowledge about what makes learning effective. Personalized relationships with learners and their families can be part of this process, as can after-school and extra-curricular programs, support for families as learning environments, and making more explicit the links between formal learning and life after schooling.

Employers increasingly recognize the need to provide workers with a good work-life balance and opportunities to combine work with family responsibilities and other activities. Some countries allow part-time teaching or opportunities throughout the career to gain experience outside schools through sabbatical leave, extended leave without pay, and job exchanges with industry. Although all such initiatives involve costs, those costs need to be set against the benefits of lower staff turnover, improved morale, and introducing new knowledge and skills into schools.

The essence of professional work can be seen as the acknowledgement that it is the professional, and not the supervisor, who has the knowledge needed to make the important decisions as to what services are needed and how they are to be provided. Organizations dominated by professionals are those in which there are fewer layers of management, workers are consulted on all matters of consequence, and workers have considerable discretion with respect to diagnosing client needs and deciding which services are appropriate to address those needs. Indeed, in many professions, and for many professionals, the worker is also the manager and, in many cases, the owner as well.

In education, too, policy makers have often concluded that top-down initiatives alone were insufficient to achieve deep and lasting changes in practice because reforms focused on aspects that were too distant from the instructional core of teaching and learning; because reforms assumed that teachers would know how to do things they actually didn't know how to do; because too many conflicting reforms asked teachers to do too many things simultaneously; or because teachers and schools did not buy into the reform strategy. Over the past decade, many education systems have granted significantly more discretion to school heads and school faculties,<sup>8</sup> something that teachers often refer to as a factor contributing to the attractiveness of the teaching profession, and something that PISA shows to be closely related to school performance, when combined with appropriate accountability arrangements.<sup>9</sup> Finland (see Box 3.2) and Ontario provide examples of how formerly centralized systems have shifted emphasis towards:

- improving the act of teaching;
- giving careful and detailed attention to implementation, along with opportunities for teachers to practice new ideas and learn from their colleagues;
- developing an integrated strategy and set of expectations for both teachers and students; and
- securing support from teachers and unions for the reforms.

In some countries, great discretion is given to the faculty, as a whole, and to its individual members. In others, more discretion is given to schools that are doing well and less to those that might be struggling. In some countries, the school leader is little more than the lead teacher; in others, the authorities continue to look to the school leader to set the direction and manage the faculty.

Results from PISA suggest that an emphasis on professional responsibility at the frontline does not conflict with the establishment of centralized standards and assessments; rather, these go hand-in-hand.<sup>10</sup>

Countries are also trying to attract different types of people into teaching, not just to overcome shortages, but also to broaden the range of teachers' backgrounds and experiences. This includes promoting the benefits of a teaching career to groups who are often under-represented among teacher ranks, such as men and those from minority backgrounds.



### Box 3.2 Teachers and schools assume responsibility for reform in Finland

Finland has made teaching a sought-after occupation by raising entry standards and giving teachers a high degree of responsibility, including as “action researchers” to find effective educational solutions. Finland has raised the social status of its teachers to a level where there are few occupations with higher status. University professors are among the most highly regarded of all professionals, and even the word for teacher is the same for school teachers as for university professors. In 2010, over 6 600 applicants competed for 660 available slots in primary school preparation programs in the eight universities that educate teachers, making teaching one of the most sought-after professions.<sup>11</sup> As a result of this competitive climate, teaching is now a highly selective occupation in Finland, with highly skilled, well-trained teachers spread throughout the country.

While teachers in Finland have always enjoyed respect in society, a combination of raising the bar for entry and granting teachers greater autonomy over their classrooms and working conditions than their peers enjoy elsewhere has helped to raise the status of the profession. Finnish teachers have earned the trust of parents and the wider society by their demonstrated capacity to use professional discretion and judgment in the way they manage their classrooms and respond to the challenge of helping virtually all students become successful learners.

Since the 1980s, the Finnish system of accountability has been redeveloped entirely from the bottom up. Teacher candidates are selected, in part, according to their capacity to convey their belief in the core mission of public education in Finland, which is deeply humanistic as well as civic and economic. The preparation they receive is designed to build a powerful sense of individual responsibility for the learning and well-being of all the students in their care. During their careers, they must combine the roles of researcher and practitioner. Finnish teachers are not only expected to become familiar with the knowledge base in education and human development, but are also required to write a research-based thesis as the final requirement for the master’s degree.

Source: OECD (2011a).

The following are some examples of interesting techniques various countries use to broaden the background of their teaching force:

- Opening the teaching profession to individuals with relevant experience outside education, not just in vocational programs (whose teachers are required to have industrial experience in some countries);
- Recognizing the skills and experience gained outside education and reflecting those in starting salaries;
- Enabling appropriately qualified entrants, including mature student teacher trainees, to start working or enter apprenticeship programs and earn a salary before acquiring teacher education qualifications; and
- Offering more flexible approaches to teacher education that provide opportunities for part-time study and distance learning, and that give credits for relevant qualifications and experience. Such alternative pathways into teaching can be particularly appealing to under-represented groups, such as men and those from minority backgrounds.

### COMPENSATION SCHEMES TO MATCH TEACHER SUPPLY AND DEMAND

Teachers’ salaries increased in real terms between 2000 and 2009 in virtually all OECD countries, but tend to remain below those of other graduates (see Figure 3.3). 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>12</sup> 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.<sup>13</sup> 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.

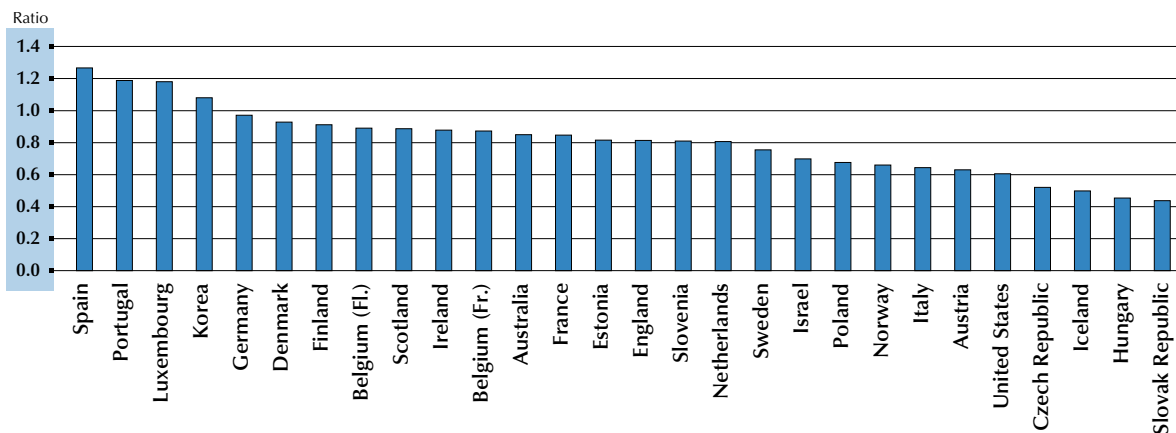




OECD research suggests that where teachers' salaries are low relative to professions requiring similar qualifications, teacher supply appears to be quite price-elastic: for a given percentage increase in teachers' relative salaries, the supply of potential teachers increases by a greater percentage. 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.<sup>14</sup>

Figure 3.3

### Teachers' salaries relative to those of workers with college degrees



Countries are ranked in descending order of the ratio of salary after 15 years of experience/minimum training to earnings for full-time, full-year workers with tertiary education aged 25 to 64 (latest available year).

Source: OECD (2011b), Table D3.2.

Nevertheless, the large size of the teaching workforce means that to raise salaries across-the-board by even a few percentage points is very costly. Furthermore, the teacher labor market is diverse, and teacher recruitment difficulties vary by type of school, subject specialization, and region. Also, in many countries the problems of teacher shortages and high turnover of staff are felt most acutely in schools that are already disadvantaged. Some countries are therefore targeting larger salary increases to schools with particular needs or teacher groups in short supply or have developed greater local flexibility in salary schemes. For example, some targeted policy initiatives aim to attract teachers in subjects such as mathematics, science, technology and vocational subjects.

Fee waivers, scholarships and forgivable loans are some of the financial incentives being provided to attract such people into teacher education; and additional payments and recognition of work experience are provided for those who already have the types of qualifications that are in short supply.

In efforts to recruit teachers for 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 financial additional payments – are often cited as important for dealing with unattractive working conditions in particular sets of schools. They can also be perceived by teachers as a reward for the more challenging work they undertake in these schools or offset changes in demand 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 (see Figure 3.4). 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.

Additional payments can take different forms: 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 scale. 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 that can be yearly or a one-time additional payment. In some cases, teachers can also receive additional payments to offset the high cost of living in certain areas.<sup>15</sup>





Figure 3.4 (2/2)

**Decisions on payments for teachers in public institutions (2009)**

Criteria for base salary and additional payments awarded to teachers in public institutions

	Criteria related to teachers' qualifications, training and performance						Criteria based on demography		Other
	Holding an initial educational qualification higher than the minimum qualification required to enter the teaching profession	Holding a higher than minimum level of teacher certification or training obtained during professional life	Outstanding performance in teaching	Successful completion of professional development activities	Reaching high scores in the qualification examination	Holding an educational qualification in multiple subjects	Family status (married, number of children)	Age (independent of years of teaching experience)	
<b>OECD</b>									
Australia	-	-					▲		
Austria			△				▲		▲
Belgium (Fl.)	-	▲							▲
Belgium (Fr.)	-	-							▲ △
Canada	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 m m
Chile		-	△	-		▲			-
Czech Republic			- ▲ △					- △	
Denmark	- ▲ △	- ▲ △	▲ △	- ▲ △		- ▲ △			
England	- ▲ △		- ▲ △						
Estonia	-	-	▲ △	-		▲ △			
Finland	-	- ▲	▲	▲		-			
France				-			▲		
Germany							-	-	
Greece	-	▲					▲		-
Hungary	-	-	△	-		▲			▲
Iceland	- ▲ △	- ▲ △		▲ △	△	△		- ▲	
Ireland	- ▲ △	- ▲							
Israel	-	-		▲			- ▲	- ▲	
Italy							-		
Japan							▲		▲
Korea					△			△	▲
Luxembourg		-		-			▲	-	
Mexico	- ▲	- ▲	- ▲	- ▲	- ▲				
Netherlands	- ▲ △	- ▲ △	- ▲ △	- ▲ △	- ▲ △	- ▲ △			
New Zealand	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 m m
Norway	- ▲	▲	▲	▲	▲	▲		▲	
Poland	- ▲ △		▲ △	-	△				▲ △
Portugal	-	-		-	-		▲		
Scotland		-							
Slovak Republic			▲ △	- ▲				△	
Slovenia	▲	▲	△	-					△
Spain		▲		-					
Sweden	-	-	-	-	-				
Switzerland							▲		▲
Turkey	-	▲	- △	▲			▲		▲
United States	- ▲	- ▲	△	- ▲					
<b>Other G20</b>									
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	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 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 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 m m
Indonesia	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 m m
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 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 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

Source: OECD (2011b).

Please refer to the Reader's Guide in Education at a Glance 2011: OECD Indicators ([www.oecd.org/edu/eag2011](http://www.oecd.org/edu/eag2011)) for information concerning the symbols replacing missing data.



Incentives need to be large enough to make a difference. For instance in some cases, disadvantaged schools would need to pay 20% or even 50% than more advantaged schools to prevent teachers from leaving.<sup>16</sup> At the same time, such mechanisms need to be well designed in order to avoid labeling certain schools as “difficult” which may discourage students, teachers and parents.<sup>17</sup>

To ensure that teachers stay in disadvantaged schools, working there can be valued formally in the teacher career path (Box 3.3). Also, if certain schools are far less appealing for teachers and in order not only to attract but also to retain teachers, incentives can be integrated in the salary scale rather than be awarded as a one-time additional payment.

Denmark, England, Finland, Korea, Mexico, the Netherlands, Sweden and the United States offer additional payments for teachers who teach in certain fields in which there are teacher shortages, which are usually given on an annual basis. Their effectiveness depends partly on the level of teachers’ salaries relative to other professions.

### Box 3.3 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 contribute to the country’s high levels of performance and equitable distribution of teachers. Other elements contributing to the high calibre of the teaching force are the highly respected status of teachers, job stability, high pay, and positive working conditions, including high levels of teacher collaboration. Low socio-economic status students in Korea are actually more likely than high socio-economic status’ students to be taught by high quality mathematics teachers, as measured by characteristics such as: full certification, mathematics or mathematic education major and at least three years of experience. Multiple incentives are offered to candidates who work in high need schools. Incentives include additional salary, smaller class size, less instructional time, additional credit towards future promotion to administrative positions, and the ability to choose the next school where one works.

In the United States, **North Carolina** enacted teaching quality improvement plans with five key features: increased initial certification requirements for teachers, increased salaries tied to meeting performance standards, new teacher mentoring, ongoing professional development for all teachers, and scholarships and loan “forgiveness” programs 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 program reduced teacher turnover by 17%, a cost saving 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.

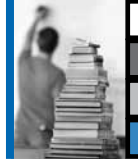
Source: OECD (2012).

Some countries have responded to teacher supply issues with systems of individual pay. In Sweden, for example, the government only sets a minimum starting salary and pay is negotiated between the school leader and the teacher (see Box 3.4).

Also worthy of attention are non-salary strategies, such as less class-contact time or smaller classes, for schools in difficult areas or that have particular education needs.

Last but not least, working conditions and teacher satisfaction and retention are closely related.<sup>18</sup> Inversely, the lack of a positive work environment contributes to the high attrition rates in certain schools, especially in the case of disadvantaged schools.<sup>19</sup> School leader support, collaboration with colleagues and adequate resources play a significant role in teachers’ decisions to stay in disadvantaged schools (see Box 3.5).

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 programs of induction 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 reduce the risk that new teachers will be disproportionately assigned to difficult schools.



### Box 3.4 Individual pay in Sweden

#### *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 labor 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-standardized working conditions at the school level. The system was at first strongly contested by unions and teacher organizations, but now enjoys an over 70% approval rate among unionized teachers.

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

### Box 3.5 Additional support in school for teachers in England

In 2003, England developed a program, Raising Standards and Tackling Workload – a National Agreement to improve working conditions for teachers. In a PricewaterhouseCoopers survey, teachers had said that two-thirds of their time was spent on non-teaching activities. Since teacher workload was given as a major reason for teacher retirements and attrition, the new program reduced workloads by reducing the overall hours in the teacher contract, providing guaranteed planning time, reducing paperwork requirements and adding support staff to provide routine administrative services and help teachers and support students. Support staff including bursars, administrative, technical and classroom support staff were recognised as important members of the school team, and the program created new career paths in three areas: pedagogical, behavioral/guidance, and administrative/organizational. Studies reported that the addition of support staff had a positive impact on teaching, teachers' job satisfaction, stress and workload, and student learning and behavior. The purpose of the program was to ensure better learning environments for students and a better working environment for teachers.

Teachers in England and Wales responded very favorably to the 2003 Raising Standards and Tackling Workload agreement. This agreement reduced the amount of administrative/ clerical duties assigned to teachers by adding support staff and providing them with better training to assume those responsibilities. It also phased in guaranteed, additional planning, preparation and assessment time for teachers. Over 97% of teachers surveyed for the Department of Education and Skills in 2004 responded that teaching and learning had improved because of the agreement, and about half reported that teacher workloads had decreased overall.

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Source: OECD (2009b).



### ESTABLISHING 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>20</sup> Where teachers are not commonly removed for unsatisfactory performance, the quality of teachers depends mainly on setting high standards of entering teacher-preparation programs, 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 organizational 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. The OECD’s *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.

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 (see Figure 1.b).

The OECD’s *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 optimize 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 jeopardized, 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 labor market, and monitoring the outcomes of a more decentralized approach and adjusting accordingly. However, successful decentralization 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.

A desire for increased flexibility in the labor market, including to accommodate maternity/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>21</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 recognize that their teaching and school organization requirements change; and these countries have some flexibility in their teacher workforce that reflects these changing requirements.





There is considerable evidence that some new 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 who participated in the TALIS 2008 survey,<sup>22</sup> 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.<sup>23</sup>

In a number of countries, a formal probationary process, combined with adequate teacher support, provides an opportunity for both new teachers and their employers to assess whether teaching is the right career for them. In some countries, the successful completion of probation is acknowledged as a major step in the teaching career. The OECD's *Education at a Glance* found that, among 26 countries with comparable data, 16 countries have a mandatory probation period for teachers. This period usually lasts for one year, but in some countries (Greece, Luxembourg) it lasts for two years, and in Germany it can even be extended to three years. In seven OECD countries, teachers receive job tenure after completing their probationary period. In some countries, such as Austria, six years are necessary to achieve job tenure, whereas there is only a one-month probation period. In other countries a period of time is necessary to get tenure, even if there is no probation period. For example, in Mexico, a teacher needs six months to get tenure without any probation period, two years to achieve tenure in Iceland, and three years in the Flemish Community of Belgium.

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 favored 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. Recognizing 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>24</sup>

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 labor 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 labor 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 centralized or establish a network of agencies to co-ordinate and foster recruitment activities. Since imbalances in the teacher labor market can take a long time to be rectified, tools for monitoring and projecting teacher demand and supply under different scenarios can also help.

### ENSURING HIGH-QUALITY INITIAL TEACHER EDUCATION

Though perhaps not as central to matching teacher demand and supply, initial teacher education is another important part of the equation to ensure the supply of a high-quality teaching force in the longer term. OECD research has identified some principles that are worth noting:<sup>25</sup>

- **Education systems benefit from clear and concise profiles of what teachers are expected to know and be able to do in specific subject areas.** This includes both subject-matter knowledge as well as knowledge of how to teach it. Such profiles can guide initial teacher education, teacher certification, teachers' on-going evaluation, professional development and career advancement, and also help to assess the extent to which these different elements are effective. The profiles can reflect the school's learning objectives and profession-wide understanding of what counts as accomplished teaching.



- Many countries have moved their initial teacher-education programs towards a ***model based less on academic preparation and more on preparing professionals in school settings, with an appropriate balance between theory and practice and collaboration among teachers as a key aspect.*** In these programs, teachers get into classrooms earlier, spend more time there and get more and better support in the process. This can include both extensive course work on how to teach – with a strong emphasis on using research based on state-of-the-art practice – and more than a year teaching in a designated school, associated with the university, during which time the teacher is expected to develop and pilot innovative practices and undertake research on learning and teaching, in partnership with other teachers and under the guidance of accomplished teachers. The Finnish University Training is a prominent example for the effective implementation of such an approach.
- ***More flexible structures of initial teacher education can be effective in opening up new routes into the teaching career, without compromising the rigor of traditional routes.*** The stages of initial teacher education, induction and professional development need to be interconnected to create a lifelong learning framework for teachers. In many countries, teacher education is not just providing sound basic training in subject-matter knowledge, pedagogy related to subjects, and general pedagogical knowledge; it also seeks to develop the skills for reflective practice and on-the-job research. Increasingly, initial teacher education tends to emphasize developing the capacity of teachers in training to diagnose student problems swiftly and accurately and to draw from a wide repertoire of possible solutions to find those that are appropriate to the diagnosis. Some countries provide teachers with the research skills needed to enable them to improve their practice in systematic ways. For example, in Finland, the Shanghai province of China and many parts of the United States, teachers are trained to be action researchers in practice, with the ability to work out ways of ensuring that any student starting to fall behind is helped effectively.
- In addition, some countries have moved from a system in which teachers are recruited into a larger number of specialized colleges of teacher education, with relatively low entrance standards, to a relatively smaller number of university-based teacher-education colleges with relatively high entrance standards and relatively high status in the university.

### PROVIDING FOR ATTRACTIVE CAREERS

Matching teacher demand and supply also relies on an environment that facilitates success and encourages effective teachers to continue in teaching. 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.<sup>26</sup> 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, that is insufficiently rewarding, or too difficult, or some combination of these factors. It underlines the importance for new teachers to participate in structured induction programs 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's *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 recognized 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 (see Box 3.6) 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 recognizes 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, but 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 mentors of new and trainee teachers, co-coordinators of in-service education, and school project co-coordinators.

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.

Providing support for new teachers should move beyond simply providing administrative and planning support, however. New teachers in many countries feel that they do not receive support and feedback on the most important element of their role as a teacher: their teaching practice. TALIS 2008 asked teachers about the frequency with which they received appraisal and feedback and from which source: the school leader; other teachers or members of the school management team; or an individual or body external to the school. Most new teachers reported receiving some form of appraisal and feedback from both the school leader and other teachers. However, in most countries, except for Korea, Mexico and Turkey, more than half of new teachers never received appraisal or feedback from an external individual. More than 19% of new teachers had never received appraisal or feedback on their work. In some countries, the percentage of new teachers who had not received appraisal and feedback is considerably higher. For example, in Italy 60% of new teachers had not received appraisal and feedback. This is the only country where over half of new teachers had not received any such feedback on their work. However, this figure is also high in Spain and Portugal, where 32% of new teachers reported never having received appraisal and feedback, and Iceland (24%).

As mentioned earlier, many countries offer mentoring and induction programs to help teachers in the early years of their profession. Indeed, approximately three-quarters of new teachers surveyed in TALIS 2008 work in schools that have formal mentoring or induction programs. But, perhaps surprisingly, new teachers who work in schools with induction or mentoring programs were not significantly more likely to receive more frequent appraisal and feedback than other new teachers. In fact, whether or not a school had induction or mentoring programs had little impact on the appraisal and feedback new teachers in that school received.<sup>27</sup>

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, and may mean that the burden of adjustment falls on those who lack tenure, commonly those near the beginning of their careers. To avoid this, it is important that emphasis be placed on the licensing aspect of teaching and that high quality robust evaluation systems and professional development are deployed 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 recognize 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.



### Box 3.6 Providing greater career diversity in Australia, England and Wales, Ireland and Québec (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.

In **England and Wales**, the new career grade of Advanced Skills Teacher (AST), introduced in 1998, is designed to provide an alternative route for career development for teachers who wish to stay in the classroom. Their role is to provide pedagogic leadership within their own and other schools. Typically, they will spend 20% of their time in an “outreach” role supporting professional development of their colleagues, and teach in class for the remaining time. Teachers can take up an AST post at any point in their career, but in order to do so they must pass the AST assessment. They prepare a portfolio that shows how they meet the prescribed standards for the grade, which is evaluated by an external assessor. The assessor also interviews the applicants and observes their professional practice. In July 2004, some 5 000 teachers had passed the AST assessment. The intention is that the grade will ultimately form between 3% and 5% of the workforce.

**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 **Québec**, 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 program. 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).

## MEETING THE NEED FOR ONGOING PROFESSIONAL DEVELOPMENT TO ADDRESS ISSUES OF TEACHER SUPPLY

Recruiting and selecting promising graduates is crucial for meeting the demand for teachers, but it is only one part of managing human resources in education and it is noteworthy that far from all high-performing education systems recruit their teachers from the top-third of graduates. Successful reform cannot wait for a new generation of teachers; it requires investment in the present teaching force, providing quality professional development, adequate career structures and diversification, and enlisting the commitment of teachers to reform. The ILO/UNESCO Committee of Experts on the Application of the Recommendations concerning Teaching Personnel notes in its 2009 report that “Teaching career structures...are evolving to encourage better teaching practices and incentives for teachers to remain in teaching, but much more needs to be done to link teacher education and professional development, evaluation and career progression. Evidence from international surveys...point to a general lack of professional development support adapted to the needs of teachers and learners.”<sup>28</sup>



The following analysis looks at how the individual development of teachers can be improved and how greater collaboration among teachers can improve teaching quality.

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. Across the 18 OECD countries participating in TALIS, the aspect of teachers' work most frequently rated by teachers as an area of need for development was "Teaching special learning needs students". 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. It is also worth highlighting that one out of five teachers across countries – and more than one out of three in Korea, Austria, Slovenia and Hungary - indicated that he or she needs professional development in student discipline and behavioral issues. Again, that is particularly relevant for teachers in disadvantaged schools as PISA shows such schools to typically have a poorer disciplinary climate. Last but not least, 13 % of teachers – and 25 % in Italy and in Ireland – reported that they do not feel prepared to teach in a multicultural setting. At the same time, there are many examples of efforts to address these issues.

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 cost in terms of both finance and teachers' time. OECD research identifies several aspects as central to successfully bridging the gap between the ideal learning environment and day-to-day practice:<sup>29</sup>

- Well-structured and -resourced induction programs 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 new 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 programs 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 3.7 Professional development for teaching minority students in New Zealand

Recent research in New Zealand reveals that Culturally Responsive Teaching (CRT) may be an effective part of a comprehensive professional development program. In New Zealand, a comprehensive professional development program for teaching Māori students, *Te Kotahitanga*, led to improved achievement of Māori students and higher overall student achievement in participating schools. The program is unique because it was developed based on interviews with year 9 and 10 Māori students about what they believed they needed to be successful. Since Māori students, on average, have lower levels of academic performance and graduation rates than their peers *Te Kotahitanga* was designed to improve Māori student achievement in New Zealand by improving teacher-student relationships using Culturally Responsive Teaching and improving teacher effectiveness with comprehensive instructional support.

*Te Kotahitanga* includes direction by lead facilitators, workshops, classroom observations and feedback, facilitator-led teacher collaboration and problem-solving based on observational and student outcomes data, and shadow-coaching for individual teachers.

Thus, the program includes both professional development and other supports that can assist teachers in being more effective with students. Māori students who attended schools that engaged in the program scored significantly higher in mathematics, physics and science, and no differently in English and history when compared to matched schools without *Te Kotahitanga*. In addition, overall student performance increased at twice the rate of the average national gain, as measured by the percentage of Year 9 entrants attaining NCEA Level 1 in Year 11. The number of students attaining NCEA Level 1 in year 11 indicates that students are on-time to graduate. These findings indicate that the program has positive effects not only for Māori students but for all students at participating schools.

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Source : OECD (2010b).

### Box 3.8 Innovative teacher-preparation programs in the United States

The Boston Teacher Residency (BTR), established in 2003, is a teacher-preparation program that recruits high-performing college graduates and professionals and prepares them to teach in Boston schools. The program focuses on mastering the skills that teachers will need to be effective in the public schools in which teachers will work, emphasizing clinical training and pairing residents with experienced classroom teachers. Residents begin the program with a two-month summer institute, and then spend their first year in a classroom four days a week, alongside a master teacher, spending the fifth day attending courses and seminars. This approach allows residents to master both the theory and practice of teaching simultaneously. After their first year, residents receive an initial teacher license and a master's degree in education, and continue to receive support from BTR in the form of induction coaching, courses and seminars, and placement in collaborative clusters within schools. Early indicators of success include a rigorous recruitment and selection process in which only 13% of applicants are admitted, three-year retention rates of 85% (far above the U.S. average for urban schools), growth of the program's outputs to fill 60% of Boston's annual need for math and science teachers, and highly favorable reviews from school principals, with 96% of principals saying they would recommend hiring a BTR graduate to another principal. A study of the program's impact on student achievement concluded that BTR math completers were less effective in the first two years of teaching and English completers were comparable to other teachers. The study also found that BTR candidates would surpass their peers in improving student achievement after the first couple of years. Given that these candidates are retained at higher rates and eventually have higher student achievement rates, the authors found that BTR graduates may be the better investment for the district. BTR recently received a USD 5 million "development" grant under the U.S. Department of Education's Investing in Innovation Fund, which seeks to identify and scale-up promising and proven practices in teacher education and other priority areas.

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Source: [www.bostonteacherresidency.org](http://www.bostonteacherresidency.org).





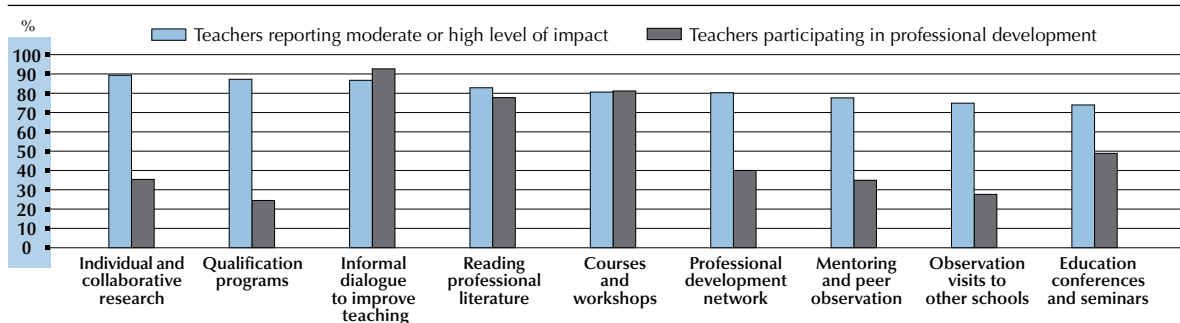
In some countries, ongoing professional development already plays an important role. In the Chinese province of Shanghai, each teacher is expected to engage in 240 hours of professional development within five years of being hired. Singapore provides teachers with an entitlement of 100 hours of professional 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>30</sup> (see also Figures 3.5 and 3.6). However, there is considerable variation in the incidence and intensity of teacher participation in professional development both across and within countries;<sup>31</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 programs” 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 an important lever towards 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.

However, schools and systems need to better match the costs and benefits of, and supply and demand for, professional development. Results from TALIS show that, across countries, relatively few teachers participate in the kinds of professional development that they believe has the largest impact on their work, namely qualification programs and individual and collaborative research, even if those who do commit considerable time and money to these courses consider them effective. Conversely, the types of activities that teachers consider less effective, namely one-off education conferences and seminars, show comparatively high participation rates. This being said, research on how the incidence and intensity of different types of professional development activities influences learning outcomes is still limited.

Figure 3.5

**Comparison of impact and participation by types of development activity**



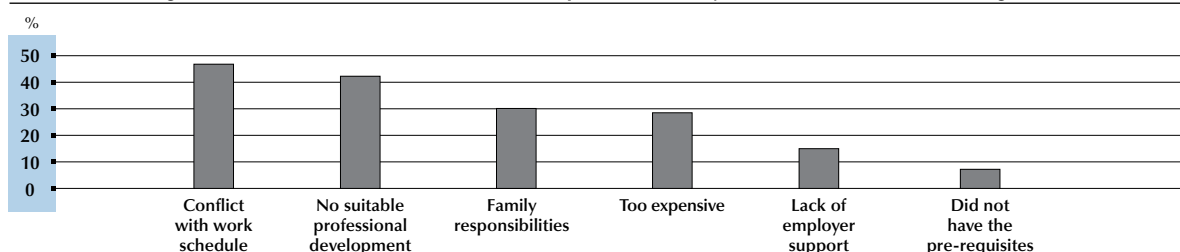
Activities are ranked in descending order of the percentage of teachers reporting a moderate or high impact of the professional development they look.

Source: OECD (2009a), Table 3.2 and 3.8.

Figure 3.6

**Reasons for not taking more professional development**

Among those teachers who wanted more development than they received (international averages)



Reasons are ranked in descending order of frequency with which the barrier was reported by teachers.

Source: OECD (2009a), Table 3.7.



Despite high levels of participation in development activities, the professional development needs of a significant proportion of teachers are often not fully met. The TALIS survey found that:

- Some 55% of the teachers surveyed reported that they wanted more professional development than they received during the 18-month survey period. The extent of unsatisfied demand is sizeable in every country, ranging from 31% to over 80%.
- Across countries, teachers who were more likely to report unsatisfied demand were in public schools, women, and under 40 years of age.
- Across countries, the aspects of teachers' work with greatest need for development are "teaching special-needs students", followed by "information and communication technology teaching skills" and "student discipline and behavior".

What prevents teachers from undertaking as much professional development as they would like? The most common reason, cited by nearly half of teachers in TALIS, was conflict with their work schedule (Figure 3.6). However, almost as many cited the lack of suitable opportunities for professional development, and these teachers also generally engaged in less development activity.

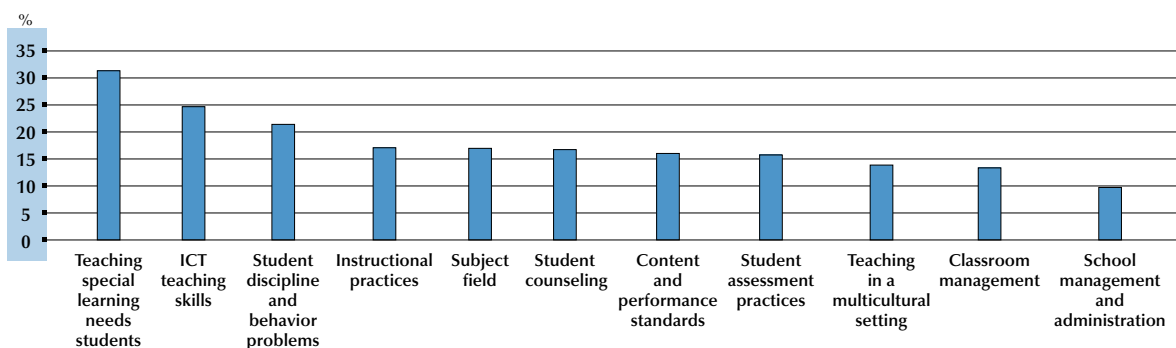
But it is not just a question of producing more of the same professional development. Teachers consistently reported that their greatest need for professional development was in learning how to handle differences in student learning styles and backgrounds, using information and communication technologies effectively, and improving student behavior (see Figure 3.7). These responses provide some direction on where future efforts should focus, and suggest that a sound assessment of provision and support of development is important.

Of course, a certain level of unsatisfied demand is to be expected; it is only natural that a proportion of teachers will, at some time, not feel fully equipped to carry out their work effectively. Nonetheless, the extent of unsatisfied demand appears large, and in some countries the great majority of teachers report that they need more professional development than they receive. The extent to which this undermines the effectiveness of these teachers is difficult to assess; but it is equally difficult to imagine that such deficits are not to some extent detrimental to effective teaching and learning. The cost of providing additional professional development needs to be seen in relation to the cost of not providing it, in terms of lost opportunities for students to learn.

Figure 3.7

### Areas of greatest need for teacher professional development

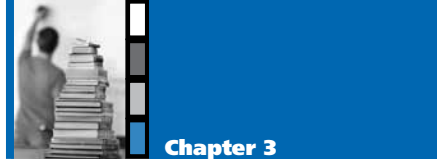
*International average of percentage of teachers reporting a high level of need*



*Areas are ranked in descending order of the international average where teachers report a high level of need for development.*

Source: OECD (2009a), Table 3.4.

Even if there is no country in which the professional development of teachers is completely free, TALIS data indicate that teachers in most countries feel that the level of support they receive, in terms of finance and scheduled time specifically devoted to development activities, is significant. An average of around two-thirds of teachers in participating countries pay nothing for these activities, and a similar proportion receives allocated time. Schools and public authorities clearly make a significant investment in teachers' professional development.



The fact that a sizeable proportion of teachers underwrite the cost of their professional development is evidence that many teachers contribute to the cost of advancing their career if they cannot find free programs of adequate quality. In fact, the data show that when teachers pay for their own professional development, they tend to participate in more of it: those who paid the full cost took over twice as many teacher-education courses as those who received them for free. This partly reflects the fact that courses that are paid for tend to lead to professional qualifications and are more time-consuming. This suggests that providing programs for free is not necessarily the only way to stimulate participation, at least when teachers are seeking to further their careers and their earnings prospects, such as when they prepare for becoming head teachers, inspectors or teachers at a superior level of education.

There is a growing amount of research on the most effective forms of professional development which has implications for its provision and organization at school and system level. The English Government's paper, the "Case for Change", (Department for Education, 2010), noted "convincing evidence that collaborative professional development is more strongly associated with improvements in teaching and learning...(and)...appears more likely to produce changes in teacher practice, attitudes or beliefs and in pupil outcomes." These findings were a result of research reviews initiated by the National Union of Teachers for England and Wales in preparation for establishing its professional development program and were carried out by Cordingley, et al. (2003, 2005a, 2005b, and 2007) for the EPPI Centre at the Social Science Research Centre, Institute of Education, University of London.

## CONCLUSIONS

Many education systems face a daunting challenge in recruiting high-quality graduates as teachers, particularly in shortage areas, and retaining them once they are hired. And yet, this chapter has shown a range of cases that successfully match teacher demand and supply even in difficult contexts. In fact, common to most education systems that demonstrate high performance and low between-school variation in performance in PISA is that they attract high quality teachers equitably across the school system, including to hard-to-staff schools.

The issue of teacher demand and supply is both complex and multi-dimensional, as it reflects several 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 distribute teachers in equitable and efficient ways, and how to retain qualified teachers over time.

Policy responses are needed at two levels. The first concerns the nature of the teaching profession itself and teachers' work environment. Such policies seek to improve the profession's general status and competitive position in the job market and are the focus of this paper. The second involves more targeted responses and incentives for particular types of teacher shortage, which recognizes that there is not a single labor market for teachers, but a set of them, distinguished by school type and characteristics, such as subject specialization.

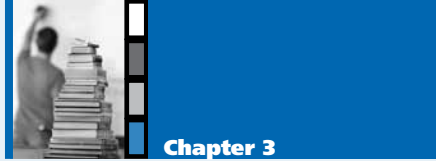
Competitive compensation and other incentives, career prospects and diversity, and giving teachers responsibility as professionals are important parts of strategies to attract the most talented teachers to the most challenging classrooms. Active recruitment campaigns can emphasize the fulfilling nature of teaching as a profession, and seek to draw in groups that might not otherwise have considered teaching. Where teaching is seen as an attractive profession, its status can further be enhanced through selective recruitment that makes teachers feel that they will be going into a career sought after by accomplished professionals. Initial teacher education is another important part of the equation to ensure the supply of high-quality teaching force in the longer term.

Last but not least, 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. High quality professional continuing development is necessary to ensure that all teachers are able to meet the demands of diverse student populations, effectively use data to guide reform, engage parents, and become active agents of their own professional growth.



## Notes

1. OECD (2005).
2. OECD (2012).
3. OECD (2012).
4. OECD (2012).
5. For an analysis of teacher demographics, see Indicator D8 in the 2003 edition of OECD's *Education at a Glance*. For updated data on the same topic, see the OECD online database at [www.oecd.org/education/eag2011](http://www.oecd.org/education/eag2011).
6. For details, see OECD (2005).
7. For data, see OECD (2010a).
8. For data, see OECD (2010a).
9. It should be noted that autonomy of schools in managing their resources is positively related to school performance in PISA 2009 only in conjunction with established accountability arrangements. In the absence of accountability arrangements, school autonomy is related negatively to school performance (for data, see OECD [2010a]).
10. For data, see OECD (2010a).
11. The admissions process occurs in two stages. The initial paper screening is based on the applicant's matriculation exam score, upper secondary school record, and out-of-school accomplishments. Those who pass that screening must then take a written exam, be observed in a teaching-like activity in which their interaction and communication skills can be assessed, and be interviewed to assess, among other things, the strength of their motivation to teach (for details see OECD [2011a]).
12. In 2009, teachers' salaries at the primary level amount to, on average, 77% of full-time, full-year earnings for 25-64 year-olds with tertiary education, 81% of those earnings at lower secondary level, and 85% of those earnings at upper secondary level. 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 the OECD's 2011 edition of *Education at a Glance*, Table D3.2).
13. For data, see OECD (2010a).
14. See OECD (2005).
15. Salaries in London for example exceed those in the rest of England by about 12% (Ladd, 2007).
16. Field, S., M. Kuczera and B. Pont (2007).
17. In North Carolina for example, labeling 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 for France.
18. OECD (2009a).
19. OECD (2012).
20. For data, see Figure IV.3.3a in OECD (2010a).
21. For data, see Indicator D3 in the 2007 edition of OECD's *Education at a Glance*.
22. Twenty-three countries participated in TALIS 2008: Australia, Austria, Belgium (Fl.), Brazil, Bulgaria, Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Republic of Korea, Lithuania, Malaysia, Malta, Mexico, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain and Turkey. TALIS 2008 was also conducted in the Netherlands but as the required sampling standards were not achieved, their data are not included in the international comparisons.
23. See OECD (2011c).



24. See, for example, the Commonwealth Teachers Recruitment Protocol of 2004, developed at the request of the 15th Conference of Commonwealth Education Ministers, Edinburgh, UK 2003.
25. See OECD (2011a).
26. For an analysis, see OECD (2005).
27. See OECD (2011c).
28. See page 4 of the Joint ILO/UNESCO Committee of Experts on the Application of the Recommendations concerning Teaching Personnel (CEART), Paris, October 2009.
29. See OECD (2005).
30. 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 lessen 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 program (e.g. a degree program); (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 [2009a]).
31. 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 [2009a]).



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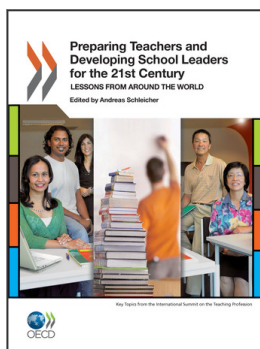
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