Strong Foundations for Quality and Equity in Mexican Schools

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Acronyms and abbreviations

AEL	State Education Authorities *Autoridades Educativas Locales*
ANMEB	National Agreement for the Modernisation of Basic and Teacher Education *Acuerdo Nacional para la Modernización de la Educación Básica y Normal*
ATP	Technical Pedagogical Advisors *Asesores Técnico Pedagógicos*
CAED	Centre for Disabled Students *Centros de Atención a Estudiantes con Discapacidad*
CEMABE	Census of Schools, Teachers and Students of Basic and Special Education *Censo de Escuelas, Maestros y Alumnos de Educación Básica y Especial*
CEPSE	School Councils for Social Participation in Education *Consejos Escolares de Participación Social en la Educación*
CIDE-PIPE	Interdisciplinary Programme for Education Policy and Practices of the Centre for Economic Studies and Research *Programa Interdisciplinario sobre Política y Prácticas Educativas del Centro de Investigación y Docencia Económica*
CNSPD	National Coordination of the Teacher Professional Service *Coordinación Nacional del Servicio Profesional Docente*
CONACYT	National Council of Science and Technology *Consejo Nacional de Ciencia y Tecnología*
CONAEDU	National Council of Education Authorities *Consejo Nacional de Autoridades Educativas*
CONAFE	National Council for Education Development *Consejo Nacional de Fomento Educativo*
CONAPASE	National Council of Social Participation in Education *Consejo Nacional de Participación Social en la Educación*

CONEVAL	National Council of Social Development Policy Evaluation *Consejo Nacional de Evaluación de la Política de Desarrollo Social*
CONPEE	Pedagogical Council of Education Evaluation *Consejo Pedagógico de Evaluación Educativa*
CTE	School Technical Council *Consejo Técnico Escolar*
CTZ	Zone Technical Council *Consejo Técnico de Zona.*
ECEA	Evaluation of Basic Conditions for Teaching and Learning *Evaluación de Condiciones Básicas para la Enseñanza y el Aprendizaje*
ECIEN	Schools on Certificates of National Education Infrastructure *Escuelas al CIEN (Certificados de Infraestructura Educativa Nacional)*
EDC	Diagnostic Census Assessment *Evaluación Diagnóstica Censal*
ELCE	Evaluation of Schools *Evaluación del Logro Referida a los Centros Escolares*
ELSEN	Evaluation of the National System *Evaluación de Logro Referida al Sistema Educativo Nacional*
EMS	Upper Secondary Education *Educación Media Superior*
ENLACE	National Assessment of Academic Achievement in Schools *Evaluación Nacional del Logro Académico en Centros Escolares*
ETC (PETC)	Full-time schooling (programme) *(Programa) Escuelas de Tiempo Completo*
EXCALE	Examinations of Education Quality and Performance *Exámenes de la Calidad y el Logro Educativo*
FAEB	Contribution Fund for Basic Education *Fondo de Aportaciones para la Educación Básica y Normal*
FAM	Multiple Contribution Fund *Fondo de Aportaciones Múltiples*

FONE	Fund for Education and Payroll Operating Expenses *Fondo de Aportaciones para la Nómina Educativa y Gasto Operativo*
INEE	National Institute for Education Evaluation *Instituto Nacional para la Evaluación de la Educación*
INEGI	National Institute of Statistics and Geography *Instituto Nacional de Estadística y Geografía*
INIFED	National Institute for Education Infrastructure *Instituto Nacional de la Infraestructura Física Educativa*
LGE	General Law of Education *Ley General de la Educación*
LGSPD	General Law of the Teacher Professional Service *Ley General del Servicio Profesional Docente*
NME	New Educational Model *Nuevo Modelo Educativo*
PEEME	State Programmes for Educational Evaluation and Improvement *Programas Estatales de Evaluación y Mejora Educativa*
PIEE	Programme for Inclusion and Equity in Education *Programa para la Inclusión y la Equidad Educativa*
PLANEA	National Plan for Students' Learning Evaluations *Plan Nacional para la Evaluación de los Aprendizajes*
PNB	National Scholarship Programme *Programa Nacional de Becas*
PNEE	National Policy on Education Evaluation *Política Nacional de Evaluación de la Educación*
PRE	Education Reform Programme *Programa de la Reforma Educativa*
PyPE	Study Plan and Programmes for Basic Education *Plan y Programas de Estudio para la Educación Básica*
SATE	Technical Support Service to Schools *Servicio de Asistencia Técnica a la Escuela*
SEDESOL	Secretariat of Social Development (Ministry) *Secretaría de Desarrollo Social*

SEP	Secretariat of Public Education (Ministry) *Secretaría de Educación Pública*
SERCE (UNESCO)	Second Regional Comparative and Explanatory Study *Segundo Estudio Regional Comparativo y Explicativo*
SIGED	System of Educational Information and Management *Sistema de Información y Gestión Educativa*
SIRE	Integral System of Evaluation Results *Sistema Integral de Resultados de las Evaluaciones*
SNEE	National System of Education Evaluation *Sistema Nacional de Evaluación Educativa*
SNTE	National Union of Education Workers *Sindicato Nacional de Trabajadores de la Educación*
SPD	Teacher Professional Service *Servicio Profesional Docente*

Executive summary

Mexico has taken important steps to improve the coverage and quality of its education system **and is moving from a system that is driven by inputs and numbers towards one based on quality of education, and more focused on student learning.** To progress further on this path, it is important for the Mexican education system to continue investing efforts in strengthening the delivery of basic education in its schools with the goal of improving student learning. This report presents an assessment of the country's education reforms in light of international evidence, remaining challenges and possible next steps to achieve the consolidation of a system that delivers educational improvement.

Mexico's recent education reform

Mexico has been undertaking important reforms that have achieved much progress in a relatively short period of time. From an education system that prioritised governance and vested interests, where there was lack of transparency in a number of areas, the Mexican government made a series of commitments to improve the quality and equity in education from 2012-2013. A constitutional reform in early 2013 and subsequent legislation have:

- Made quality education (*educación de calidad*) a right for all Mexicans by including it in the Constitution.
- Made equity both a priority across the education system and a transversal principle in the new educational model and targeted programmes for specific population and indigenous groups.
- Introduced a new curricular reform based on the vision for the Mexican learner in the 21st century, to respond to learning needs for the century. The curriculum includes knowledge, skills, values and attitudes, taking into account wellbeing and socio-emotional education, a balance that many education systems internationally are reflecting upon. The new reform also offers some degree of curricular autonomy.
- Focused on improving school environments for effective teaching and learning, upscaling full-time schools, defining minimum norms of operation for schools and a new school improvement support service (*Servicio de Asistencia Técnica a la Escuela*, SATE).
- Created a teacher professional service based on merit that includes teachers, principals, supervisors and pedagogical support figures, and that has competency-based profiles and standards, with a career structure that includes clear entry, permanence and promotion mechanisms for the teaching profession.
- Provided constitutional autonomy and responsibility to the National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación*, INEE) over the national evaluation system of Mexico's compulsory education

system in 2012. Part of this has been the design of evaluation and assessment frameworks such as PLANEA that support schools and policy makers to ensure effective student learning and enhance the quality of education for all.

- Provided high levels of funding for the improvement of school infrastructure across the country, with a special focus on schools with the most pressing needs.

While progress has been made, many of these reforms need time to mature and flexibility to be adjusted as required to ensure schools deliver quality education for all students. This requires a balance between policy design and implementation on the ground. The OECD suggests four main priorities to move ahead in this process.

Reflection for future policy development

Priority 1: Providing equity with quality in Mexican education

Mexico has succeeded in a range of areas to enhance the opportunity to learn for all students. The legislation reform has introduced the issue of quality and equity in education as a priority for education services, and further policies have laid a strong basis to progress towards a better quality of its education services. Progress in equity has advanced on two fronts. In terms of system-level policies, Mexico has focused on expanding and improving enrolments in ECEC and upper secondary education, on aiming for transparency in overall funding; establishing basic conditions for all schools to comply with; and supporting the consolidation of all-day schools. In terms of targeted programmes, the NME introduced a Strategy for Equity and Inclusion in Education aiming to build a coherent approach to the different existing equity programmes. There has also been considerable investment in educational infrastructure across the country. Mexico should ensure that policy development in education continues advancing towards high-quality learning for all students in the future. In this respect, Mexico could:

- Introduce educational and school funding formulas so resources are distributed equitably between schools.
- Guarantee that disadvantaged schools attract and retain qualified education professionals.
- Monitor the coherence and impact of targeted programmes.
- Consolidate school infrastructure and continue with investment and maintenance of the physical environments.

Priority 2: Providing 21st century learning to all students

Overall, Mexico's curriculum reform design brings together the best international practices, and aligns them with the vision the country set for its education system. The efforts to engage with stakeholders from diverse corners of the education system in a consultation to elaborate the curriculum are commendable, and resulted in a high quality curriculum, while the education authorities proved extremely skilful at managing large-scale projects such as the production of new instructional material on a tight schedule. From now on, education authorities in Mexico should focus their efforts on providing all the support necessary to accompany students, educators and school communities as well as authorities at lower levels of government to take ownership of this new curriculum and implement it properly. In this regard, Mexico could:

- Prioritise investment in teachers' and school leaders' capacity to implement the new curriculum.
- Give schools the time and agency required for effective curriculum implementation.

Priority 3: Supporting teachers and schools

Mexico has made significant progress in producing mechanisms to support schools as learning communities and implementing concrete efforts to introduce the Teacher Professional Service (SDP) that provides the system with transparency and reliability. The strategy *La Escuela al Centro* (The School at the Centre) was created by SEP to give coherence at the school level to Mexico's 2013 reform priorities, and reorganise school support programmes accordingly. The SDP sets out the bases for selection, induction, promotion, incentives and tenure possibilities, as well as for stimulating continuous professional training for educational staff. There are some areas in these domains that require further attention. In particular, Mexico could:

- Strengthen leadership and school-level collaboration to enact the School at the Centre strategy (*La Escuela al Centro*).
- Promote the career perspective of the Teacher Professional Service.
- Prioritise continuous professional development and SATE to grow education professionals' quality.
- Keep adjusting the professional performance appraisal to deliver on both its formative and summative functions.

Priority 4: Focusing evaluation and assessment on schools and student learning

Mexico has made important progress in the consolidation of a comprehensive national system for education assessment and evaluation. INEE is now an autonomous body with the role of coordinating the national system of education assessment and evaluation. This system should be seen as an essential piece to support quality and equity in education as mandated by Mexican Law. In this regard, at instrumental level, the three modalities of PLANEA (SEN, Schools and EDC) should be seen as a major step in making the assessment and evaluation system more formative. In addition, the actions undertook by INEE and SEP to develop evaluation and assessment capacities at sub-national level are commendable. To continue this path, Mexico could:

- Ensure that all evaluation and assessment information (like PLANEA results and information contained in SIRE) is used to improve policies and school practices.
- Use system evaluation to identify vulnerable student groups and to inform policy instruments to support them.
- Invest more in evaluation and assessment capacity development at state and school level.
- Encourage the formative use of the results of PLANEA to improve school practice.
- Use the mechanisms for educational information and management to their full potential at national, state and school levels.

Chapter 1. An overview of the education system in Mexico

This chapter provides an overview of Mexico's education system and its context. While the Mexican economy has experienced an important transformation since the 1980s, social inequalities prevail across the country. The education system can contribute to tackle them and provide a better future for Mexico.

Mexico has a large and complex education system that caters to almost 26 million students in basic education, with diverse backgrounds and an indigenous population speaking more than 64 different languages. The system is characterised by complex governance arrangements and a large teacher workforce working across more than 225,000 schools. Comprehensive evaluation and assessment practices were recently developed. Student learning has improved since 2000 but it still stands below the OECD average. Recent reforms aim to target equity, adapt to the globalised environment of the 21st century, improve student learning and well-being, construct a professional teaching career and support schools. For the system to deliver high quality education to all students, it will need to continue building from these foundations.

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

Introduction and background of the report

Countries across the world are facing a range of transformations that are influencing their education systems. These include globalisation, socio demographic diversification, technological changes and digitalisation, increased information and accountability, and a realisation of the need to tackle inequalities. To respond, governments are designing policies to raise the quality and reduce the inequalities in their education systems to adapt and shape the future.

Mexico has been committed to reforming its education system in recent years, in order to provide better learning and, eventually, better life opportunities, for all its students. Efforts undertaken have aimed to improve coverage and quality of its education system, while changing the focus from inputs and numbers to student learning and schools as the centre. To understand how Mexico can move forward on this track, it is essential to reflect on the significant education reforms the country has undertaken over the past years.

In 2018, the Mexican Government invited the OECD to assess the education reforms started in 2012-2013, as part of the OECD Implementing Education Policies project (Box 1.1). This report presents the results of this assessment, focusing on basic education (composed of pre-school, primary and lower secondary education). The report: a) presents and analyses the main reforms Mexico has implemented in recent years; and b) provides insights for future policy development on how these policy investments can reach schools and students to improve learning for all. These two aspects are discussed in light of evidence and what is considered international best practice. More concretely, the OECD analysis focused on the following items of Mexico's current reform agenda:

- **Quality and equity in education.** Mexico has made commendable efforts to establish quality and equity as a guiding principle in education policymaking, building consensus for the signature of a political Pact for Education and enshrining the concept of quality with equity in the Law. Since 2013, the country notably invested to increase enrolment rates in early childhood education and care (ECEC) and upper secondary education, to support the most disadvantaged students financially and with adequate instructional approaches, and to enhance educational infrastructure.
- **New curriculum.** Mexico introduced a new curriculum for compulsory education (from pre-school to upper secondary education) focused on ensuring that all students develop the knowledge, attitudes and skills required in the 21st century, including in socio-emotional skills, also introducing some curricular autonomy for schools. The implementation process for the curriculum reform started in a sequenced manner in schools from August 2018.
- **Support for teachers and schools.** Several mechanisms have been designed to strengthen schools in delivering education and to support a teaching career that also relies on an external evaluation system for teachers. In particular, both the strategy *La Escuela al Centro* and the Teacher Professional Service (*Servicio Profesional Docente*), including the school improvement support services SATE (*Servicio de Asistencia Técnica a la Escuela*) can be perceived as two fundamental structures that aim at transforming schools structures while providing the tools for teachers to identify their needs and progress in their careers.

- **Evaluation and assessment for system improvement.** Mexico has made significant progress in the creation and operation of a comprehensive national system for education evaluation led by INEE as an autonomous body. It is acknowledged that this evaluation system was created with the intention of supporting quality and equity in education as mandated by the Mexican Constitution and supporting legislation. The evaluation and assessment tools administered by INEE should be seen as a valuable input to support SATE and teachers' pedagogical practice in the classroom and improve learning for students.

This report is part of OECD's education policy implementation support activities, undertaken by an OECD international team (Annex A). Using OECD methodology (Box 1.1), this report is part of the OECD's efforts to strengthen the capacity for education reform across OECD member countries, partner countries and selected non-member countries and economies. It draws on qualitative and quantitative comparative data from benchmarking education performers collected by the OECD, research and desk-based analysis of key aspects of education policy in Mexico, a study visit to Mexico (18-24 June, Annex B), additional meetings with a range of key stakeholders and regular exchanges with the national coordinator team. The OECD team members also made extensive use of statistical information and policy documents from other institutions and those from the Mexican government, referenced throughout the text as data provided by the Mexican authorities.

Box 1.1. OECD's Implementing Education Policies support activities

As education has become a greater priority in strengthening knowledge economies, governments have developed a significant number of policies to improve the equity and quality of their education systems. Yet policy reforms do not always translate into concrete actions and visible results in schools, however well designed they may be. Failure to produce the desired policy outcomes may come from the gap between the keen attention given to the policy while it is being designed and the lack of attention when it comes to implementing it, as well as resistance against the reforms or lack of capacity to put them in place, among other reasons. Not implementing proposed education policies may result in expectations for education improvement failing to live up to the reality, not to mention erosion of trust in governments, and wasted public resources.

OECD's education policy implementation support activities can cover a wide range of topics and sub-sectors tailored to the needs of the country. Countries can opt for a range of support activities, including a) an initial policy assessment of the reform or reforms, b) stakeholder engagement seminars and c) strategic advice on reform strategies. The methodology aims to provide tailored analysis for effective policy design and implementation. It focuses on supporting specific reforms by tailoring comparative analysis and recommendations to the specific country context and by engaging and developing the capacity of key stakeholders throughout the process.

The policy assessment includes one or more visits to the county by an OECD team with specific expertise on the policy reforms, often with one or more international and/or local experts. The assessment process typically takes from six months to a year, depending on its scope, and consists of six phases: 1) definition of the scope; 2) desk review and preliminary visit to the country; 3) main visit by an OECD team; 4) drafting of the document; 5) discussion of draft report with key stakeholders; 6) launch of final report.

This introductory chapter presents an overview of key aspects of the economic and social context shaping education in Mexico; and discusses the main features of the Mexican education system. It follows with a brief overview of the recent education reforms implemented in Mexico since 2013. The chapter finishes with a section offering a brief assessment that lay out the four policy issues that are discussed in the rest of the report.

The Mexican context shaping education

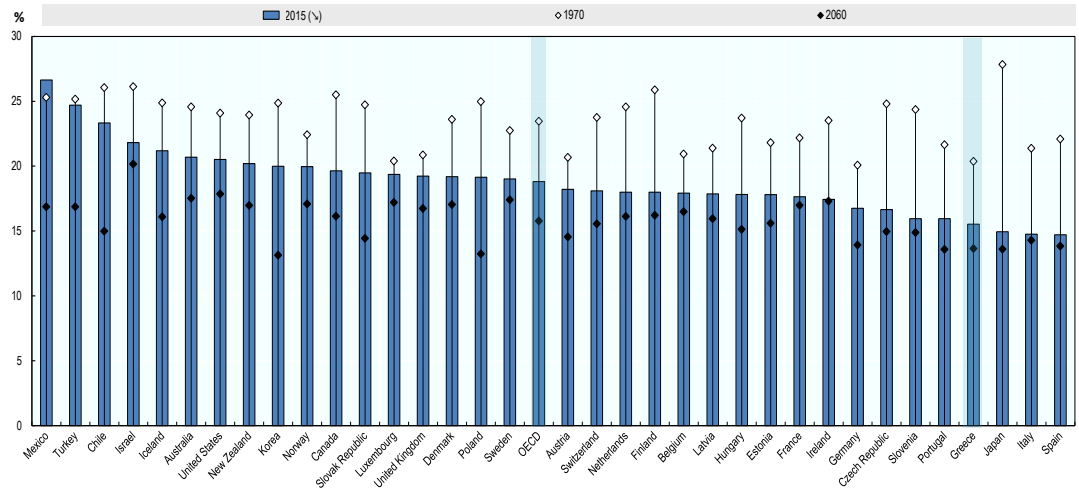
Designing, implementing and reviewing education policy in Mexico requires understanding and responding to different contextual changes, the provision of substantial resources and strong collaboration. All these factors are needed to face demographic changes combined with a considerable diversity in culture and geography, uneven economic transformation, labour market difficulties and persisting social inequalities.

A large, young and geographically dispersed population

With almost 124 million habitants Mexico ranks 10th in the world in terms of the size of its population (Instituto Nacional de Estadística y Geografía, 2017[1]; The World Bank, 2017[2]), about half of which (45%) are less than 25 years old (INEE, 2018[3]). With such a high share of the young population (one of the highest in the OECD, as shows Figure 1.1), education issues are of prime importance for the country's development.

Figure 1.1. Share of youth as part of the population in Mexico, 2016

Number of young people (aged 15-29) in total population, percentages, in 1970, 2015 and 2060



Source: OECD (2016[4]), *Society at a Glance 2016: OECD Social Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264261488-en.

StatLink http://dx.doi.org/10.1787/888933405255

Population dispersion is also a substantial challenge for education provision: 79% of Mexicans live in urban areas, mostly in Mexico City (over 12 million people) or other cities with over 1 million inhabitants (World Population Review, 2018[5]). Still, the remaining 21% of the Mexican population live dispersed in remote and small communities of no more than 2 500 inhabitants (Instituto Nacional de Estadística y Geografía, 2017[1]; The World Bank, 2017[6]). This imposes significant challenges for the

provision of adequate infrastructure and services, not only education. At the same time, the different subnational authorities (state governments) in charge of implementing education policy at school level have different resources and capacities to undertake their actions. As a result of these asymmetries, the educational services received by the population may vary across the national territory.

Economic transformation and social inequalities

In recent decades, Mexico has undergone a profound economic transformation. Since the 1980s, Mexico's economy has evolved from an import substitution to an export-oriented economic model. In the space of only a few years, Mexico has become a global leader in the export activities of major industries (such as auto parts, engines, electronic and medical equipment, and televisions), and one of the major recipients in the Latin American region of foreign direct investment, due to structural reforms that have made the Mexican economy more open and attractive. However, many Mexicans do not fully benefit from this economic transformation. Many Mexican industries still focused on low value added activities with low productivity levels even if integrated into a global value chain. Furthermore, many Mexicans still lack good quality basic services in education, health and housing. There is a large proportion of people working in the informal economy where employment conditions are more precarious. Within this context, women, indigenous population, and youth are especially vulnerable to poor working and living conditions (OECD, 2017[7]).

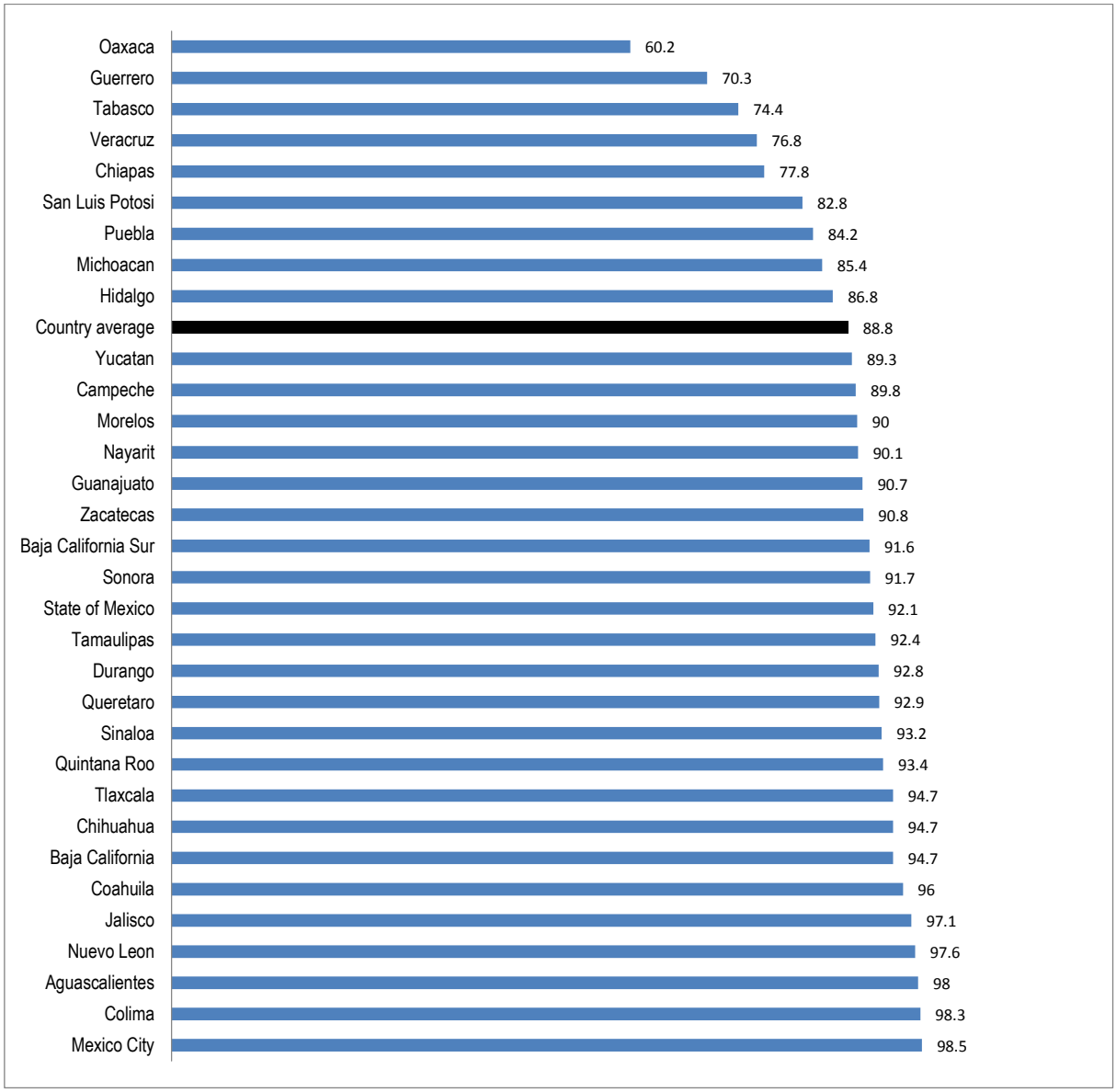
Persistent and high inequalities

Income inequality persist across the country and is high relative to other OECD countries, with the richest 10% earning 20 times as much as the poorest 10%, compared to an average ratio of 8 across the OECD (OECD, 2017[8]). According to the Economic Survey undertaken by the OECD (OECD, 2017[8]), inequality as measured by the Gini coefficient is high and has not declined. Tackling this issue continues to be a priority for the country, which already has high social spending as a share of total public expenditure, but remains at the low end among OECD countries in terms of its share of GDP (OECD, 2017[8]).

Poverty rates differ markedly across states. The share of people living on less than 50% of the median income ranges from 6.8% in Nuevo León to 50% in Chiapas. A broader measure of poverty that considers non-income dimensions of well-being confirms these regional differences. While multidimensional poverty decreased in 25 out of 31 Mexican states and Mexico City between 2012 and 2016, it increased further in states that already had the highest prevalence of poverty. Still, Mexico is one of the few OECD countries to have experienced a decline in income inequality during the 1990s until the mid-2000s, although the level of inequality has since stagnated and remains one of the highest in the OECD (OECD, 2017[9]). At the same time, other forms of inequality also persist between different regions and states. As shown in Figure 1.2, there is a large dispersion in household's access to basic services in Mexico. For example, in Oaxaca, only about 60% of the households have access to basic services (tubing water, sewer system and electricity) while, in Mexico City, such access is almost universal (98.5%).

Mexico's health system has improved in general terms and some performance indicators in the sector have improved. Nevertheless, for many Mexican families, this improvement fails to translate into better health. Some indicators that remain cause of concern are obesity and diabetes and high private payments and administrative costs suggest ongoing inefficiencies and unequal access for the population (OECD, 2017[8]).

Figure 1.2. Percentage of households with access to basic services in Mexico, 2016



Note: This indicator corresponds to the percentage of households with adequate: tubing water, sewer system and electricity). Data generated based on the methodology developed and proposed by the OECD.
Source: INEGI (2016[10]) (2016) *Módulo de Condiciones Socioeconómicas; Encuesta Nacional de Ingresos y Gastos de los Hogares*.

Informality in Mexico affects the majority of the working population. According to the National Institute of Statistics and Geography (INEGI) informality affects 57.2% of the employed population in 2017 (INEGI, 2018[11]). Although this is an improvement from 60% at the end of 2009, it remains high. People in informal jobs are more exposed to precarious working conditions, less training and do not have health and pension coverage (OECD, 2017[7]).

It is in this background of uneven economic performance across regions and economic sectors, with considerable social and labour market disparities, where the education

system has a role to play. With almost half of the Mexican population being young, a high quality education system for all Mexican children can contribute to reduce inequalities and better prepare them for their future and the future of the country.

Main features of the Mexican education system

Mexico has a large and complex education system that caters for the needs of a diverse population. This section presents an overview of a range of features that represent the Mexican education system, such as the diversity of its student body, the governance and funding of the system, the operation and management of schools and the teaching force, as well as evaluation and assessment practices underpinning the system. It concludes with a general picture of students' outcomes (including equity and inclusiveness) in the system.

A large and complex system

Mirroring its population size, Mexico has one of the largest and most complex education systems in the OECD, with almost 31 million students enrolled in public and private institutions at compulsory education level in 2016 (Table 1.1). Basic education alone accounted for close to 26 million students, 1.2 million teachers and more than 225 000 institutions. Around 5 million students more were also enrolled at upper secondary level in 2016-2017.

Student progress through the education system is organised in three main levels: a) basic education includes pre-school education (three years; 3 to 5 year-olds); primary education (six years; 6 to 11 year-olds) and lower secondary education (three years; 12 to 14-15 year-olds); b) upper secondary (with options between general or more vocational programmes for 15 to 18 year-olds); c) and tertiary education. School attendance is compulsory for 14 years from pre-primary education to upper secondary education (compulsory since 2012) (Santiago et al., 2012).

The national education system caters to the educational needs of a large and highly diverse population. 21% of the population live in rural areas and more than half of the schools have at least one multigrade (*multigrado*) class (50% of primary schools in 2015-2016) which means that teachers cater to students at different levels of primary education in the same class (INEE, 2018[3]). Furthermore, the system needs to cater to the cultural richness of more than 800 000 students in indigenous education who speak 68 languages different from Spanish, and a total of 1.2 million indigenous or migrant students (SEP, 2018[12]).

To cater to the different needs, pre-primary and primary education segments are provided in three different types of school modalities: general, communitarian and indigenous. General schools are more typical of urban and rural zones and enrol the vast majority of students in these education levels (see Table 1.1). More than 21 000 indigenous schools are characterised by bilingualism/biculturalism: a school where at least one Indigenous language is taught and elements of Indigenous culture are immersed in the school's activities. They are not necessarily attended in majority by students with an indigenous background. Community courses are targeted at small communities and are run by the National Council for Education Development (*Consejo Nacional de Fomento Educativo*, CONAFE), which implements programmes to promote education among populations in rural and urban highly deprived contexts to guarantee that children and young people

receive an education of quality in communities (Santiago et al., 2012) . There are special textbooks published in many indigenous languages and specialised training for teachers.

Lower secondary education is provided in three distinct modalities, each typically associated with a school type: general, technical, and televised (*Telesecundaria*, Tele-secondary), also, these major modalities might also contain other subcategories such as communitarian and those for workers. At the same time, lower secondary schools can be either public or private. In this level of education, general schools cater for about half of the student enrolment while about 28% of students attend a technical school (a school which in addition to general education offers a range of "technical" subjects such as ICT or electronics and which gives access to any type of upper secondary education) (Santiago et al., 2012).

Table 1.1. Key data on basic and upper secondary compulsory education in Mexico, 2016-17

Number of students, teachers and schools in Mexico, 2016-17

LEVEL	Students			Teachers	Schools
	TOTAL	Women	Men		
TOTAL Compulsory Education System	30 909 211	15 285 480	15 623 731	1 634 936	246 475
Basic education	25 780 693	12 700 104	13 080 589	1 217 191	225 757
Public	23 172 402	11 413 943	11 758 459	1 049 073	196 960
Private	2 608 291	1 286 161	1 322 130	168 118	28 797
Pre-School	4 931 986	2 443 997	2 487 989	234 635	88 939
General	4 343 899	2 152 159	2 191 740	196 121	60 864
Indigenous	423 344	210 264	213 080	19 031	9 838
Community courses	164 743	81 574	83 169	19 483	18 237
Public	4 226 934	2 097 378	2 129 556	190 680	74 332
Private	705 052	346 619	358 433	43 955	14 607
Primary	14 137 862	6 938 358	7 199 504	573 284	97 553
General	13 220 695	6 488 298	6 732 397	524 483	77 090
Indigenous	808 046	396 930	411 116	37 030	10 195
Community courses	109 121	53 130	55 991	11 771	10 268
Public	12 824 766	6 294 632	6 530 134	511 758	88 526
Private	1 313 096	643 726	669 370	61 526	9 027
Lower secondary	6 710 845	3 317 749	3 393 096	409 272	39 265
General	3 457 629	1 719 290	1 738 339	235 242	15 849
Tele-secondary	1 432 422	693 406	739 016	72 995	18,705
Technical	1 820 794	905 053	915 741	101 035	4 711
Public	6 120 702	3 021 933	3 098 769	346 635	34 102
Private	590 143	295 816	294 327	62 637	5 163
Upper Secondary	5 128 518	2 585 376	2 543 142	417 745	20 718
General	3 202 514	1 654 041	1 548 473	223 171	16 107
Technological	1 551 731	757 051	794 680	149 430	3 381
Vocational	307 883	135 380	172 503	35 412	530
Vocational technical	66 390	38 904	27 486	9 732	700
Public	4 165 665	2 085 797	2 079 868	305 828	13 893
Private	962 853	499 579	463 274	111 917	6 825

Source: SEP (2017[13]), *Estadística e Indicadores Educativos Nacionales e Internacionales, 2016-17*.

Education governance

Mexico has a federal system composed of 32 federal entities (31 states and Mexico City), further divided into 2 457 municipalities. The separation of power between levels of government is complex. In general, states and municipalities are responsible for 50% of total public expenditure, in line with the OECD average of federal countries. The difference between taxing power and spending responsibilities is significant compared to the rest of the OECD, however. Mexico's subnational governments have a low share of resources from tax revenue, among the lowest of OECD countries (OECD, 2017[9])

In education, responsibilities are shared between federal and state governments (e.g. for primary education) and between states and municipalities (e.g. for school building (OECD, 2016[14]), but the governance arrangements are not straightforward. A decentralisation process was initiated with the signature of the National Agreement for Modernising Basic and Normal Education *(Acuerdo Nacional para la Modernización de la Educación Básica*, *ANMEB*) in 1992 between federal and state authorities. It meant that the states took over the operation of basic education services previously conducted by the central government. The education services in the Federal District were not decentralised and are managed at the federal level, with its "minister" of education appointed by the federal Minister of Education (OECD, 2010[15])

The decentralisation of education services has not, however, evolved into a completely consolidated institutionalised education system. While formally the different functions are clearly defined, in practice federal and state-level institutions sometimes overlap or interact in uncoordinated ways.

Overall, the federal government establishes norms and regulations, and delivers programmes to the states for them to operate. States are in charge of operating basic education services within their territories at the pre-primary, primary and secondary levels, as well as initial teacher education (Teachers' Colleges), except for the system of basic education in Mexico City (*Ciudad de México*) which is operated through a unit of the SEP that has autonomy in management and pedagogy.

At the national level, the Secretariat of Public Education (*Secretaría de Educación Pública*, SEP) is the main authority in education. It is currently organised into four main under-secretariats: Basic Education (*Educación Básica*, SEB), Upper Secondary Education (*Educación Media Superior*, SEMS), Higher Education (*Educación Superior*, SES), and Planning, Evaluation and Co-ordination (*Planeación, Evaluación y Coordinación*, SPEC).

In addition to SEP, a range of actors of diverse nature play an important role in education at the national level including:

- The National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación*, INEE), an autonomous body which has the main responsibility for evaluation of the education system.
- The National Council of Educational Authorities (*Consejo Nacional de Autoridades Educativas*, CONAEDU), composed of the Federal Government, representatives of the educational authorities at state level and chaired by the Federal Secretary of Education. Its role is mainly advisory, but it can take the lead to co-ordinate some policies across states.

- The National Union of Education Workers (*Sindicato Nacional de Trabajadores de la Educación*, SNTE), the largest teacher union in Mexico (and one of the largest in Latin America).
- The National Council for Social Participation in Education (CONAPASE), was created to promote stakeholder engagement of educational community representatives and collaboration with educational authorities to improve basic education in schools. Stakeholders include parents, and their representatives, teachers and their representatives, leaders, students or other interested community members in contributing to the improvement of schools. The National Council reflects and supports School Councils for Social Participation which have been created across the country (SEP[16]).

At the state level each of the 32 federal entities has the attribute to operate their education system. Most Mexican states have an Education Ministry or Department (*Secretaría de Educación Estatal)* or decentralised institutes to manage their education systems. State educational authorities take responsibility for the operation of basic (including Indigenous) and special schools, run Teachers Colleges (*normales*, Normal Schools) where most initial teacher education takes place, provide professional development for basic education teachers, and authorise private providers of basic education to operate (OECD, 2010[15]).

States are given full responsibility for the quality of basic education, the appointment and dismissal of teachers and the relations to the school community and the general public. With the education reforms, schools have the faculty of deciding, based on the curricular autonomy component, on how to address students' needs and interests, according to the guidelines issued by SEP. They can also develop evaluation activities to complement those organised by the federal SEP.

Some observers have suggested that there are not always straightforward relations between central and state authorities, and this affects the development of education policy. There is evidence pointing that when state governments are from different political parties from the national government, or where the trade union is powerful to resist this affects the take up of policies (Ornelas, 2010; Barbas, 2010 in (Scott et al., 2018[17]). In addition, it has been suggested that the decentralisation agenda has not been fully implemented for a range of reasons. But state governments may not have the capacities to handle the challenge, or the research base needed at the state and teacher level. Many policies and funding still remain at the national level, as programme funding and infrastructure are nationally allocated. States have low levels of financial resources and this together with other factors, can lead to states having limited capacity to develop and implement education policy (Scott, D.; Posner, C.; Martin, C.; Guzman, E., 2018[18]).

In addition to government authorities, there are many stakeholders at the heart of governance of education systems. A range of actors, including students, parents, teachers, employers, and trade unions, have stakes in education outcomes, and often policies and reforms need to engage them and address their legitimate concerns (Viennet and Pont, 2017[19]).

In Mexico, the main teacher union, National Trade Union of Education Workers (*Sindicato Nacional de Trabajadores de la Educación*, SNTE) has played a key role in education policy for many years. Because all basic school teachers are required to affiliate by law (Presidential Decree of 15 March 1944), it is one of the biggest teacher unions in the world. It includes teachers, school leaders, administrative personnel and

other educational workers such as supervisors, staff from initial teacher education institutions or from SEP.

Within the corporatist system operating in Mexico for decades, SNTE has historically been involved in the operation of the education system actively beyond the more conventional industrial labour relations role played by teacher unions in other OECD countries. The union and the State were embedded in a more corporatist relationship, co-participating in the administration of the education system, in areas such as staff recruitment of teachers and school leaders (through joint SEP-SNTE selection committees), supervision of schools, high participation of the union in SEP, as well as in structures of power across the states (Santiago et al., 2012[20]). In 2013, with the agreement established in the Pact for Mexico in relation to education, the introduction of a professional teaching system (SPD) and the arrest of the president of the union, SNTE moved to adopt a more standard union role that other unions adopt internationally, bargaining for salaries and for labour conditions and focusing its role in providing training for teachers (Scott et al., 2018[17]).

Recently, representatives of civil society have gained importance, focused on raising awareness of the need to strengthen public education and providing important bridges between parents, society, education and schools. Non-governmental organisations such as *Mexicanos Primero, Suma para la Educación, Observatorio Ciudadano, Empresarios por la Educación Básica* and others have become more involved in the discussion and design of education policy. The example of CONAPASE (National Council of Social Participation in Education, *Consejo Nacional de Participación Social en la Educación*) is of special interest. CONAPASE has had 8 national sessions (until July 2018) since 2016, and has a formal and legal structure for consultation (with many of the actors in the system) and operation (OECD, 2010[15]) (Santiago et al., 2012[20]).

With this national environment, Mexican schools have had overall less autonomy than in other OECD countries, especially at the primary level of education (OECD, 2018[21]): Mexican schools' leaders, teachers and governing boards have responsibilities in less than 50% of their tasks, which is much lower than the OECD average (over 70%).

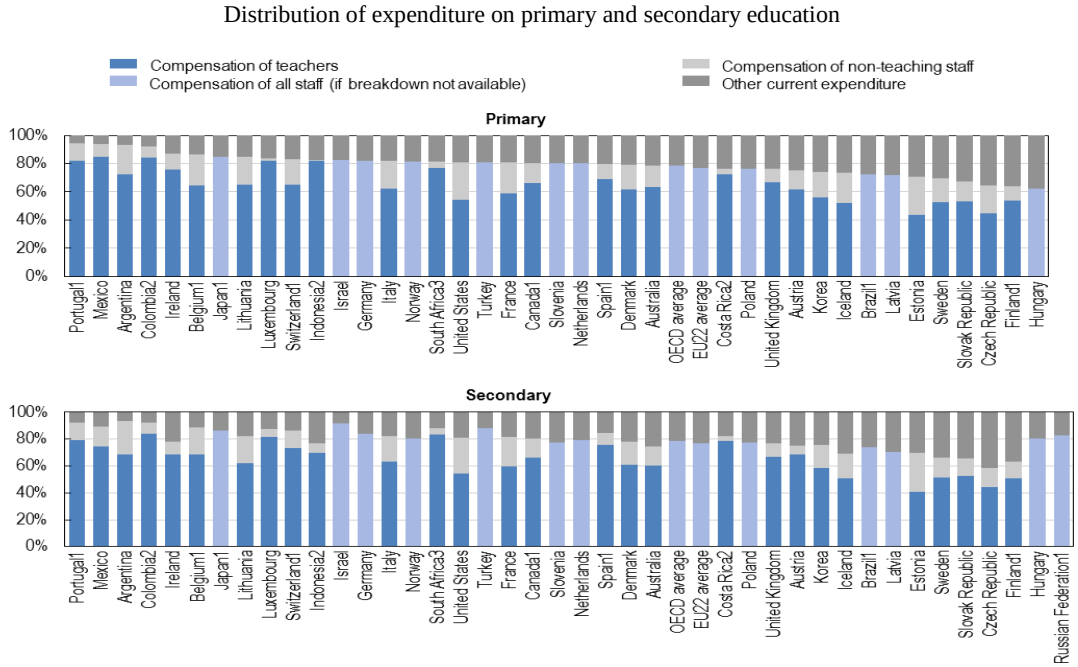
Increases in education spending

Mexico's education expenditures make up a relatively higher share of the country's GDP than the OECD average (5.4% in 2014 against an average of 5.2%). A larger-than-OECD-average portion comes from private sources (20.6% compared to 15.4%), although the share of public spending is increasing faster in Mexico. Between 2008 and 2014, Mexico had the biggest increase in public spending in the OECD of 11.9%, while private expenditure increased at the same rate as the OECD average (13%) (OECD, 2018[21]).

Annual expenditure per student by educational institutions, at the primary level in 2014 was USD 2 896, among the lowest in the OECD (OECD average expenditure: USD 8 733). At the secondary level, Mexico spends USD 3 219 per student, compared to the OECD average of USD 10 106, while at the tertiary level (including spending on research and development), Mexico spends USD 8 949 per student, compared to the OECD average of USD 16 143. This means that expenditure in tertiary education per student is over three times the expenditure in primary education institutions - the highest differential across all countries with available data, which on average spend 1.9 times as much per tertiary student than per primary student.

Between 2008 and 2013, total expenditure (both public and private) on primary to upper secondary education increased by 18%, while the number of students at these levels of education increased by 5%, resulting in an increase of over 12% in expenditure per student. In tertiary education, where numbers have been rapidly expanding (by 26% between 2008 and 2013), expenditure per student in this period decreased by 9%, despite a 14% increase in the budget over the same period (OECD, 2018[21]). Similarly to other countries, over 90% of the spending is allocated to recurrent costs, most of which are made up by salaries (Figure 1.3). Expenditures on infrastructure and other non-current expenditure are therefore less than 10%.

Figure 1.3. Composition of current expenditure in public educational institutions, 2014



Note: 1. Some levels of education are included with others.
2. Year of reference 2015.
3. Year of reference 2013.
Source: OECD / UIS / Eurostat (2017[22]), *Education at a glance database*, http://stats.oecd.org/.

Federal spending on compulsory education (*Gasto Federal ejercido en Educación Obligatoria*, GFEO) makes up the most part of overall education spending (INEE, 2018[3]). It is allocated to the states through two main channels: the Federalized Spending Programmes (*Programas de Gasto Federalizado*, or *aportaciones*), which are earmarked to education; and budgetary participations (*participaciones*), which are transferred as part of the states' sovereign budget and can be used partly for education, depending on each state's decision. A third part of federal funds completes the overall budget for education through Federal Programmes (*Programas Federales*), which are directly administered by the central government. Still, each state can decide, each year, if they contribute additional resources to the federal expending on education for their individual systems but, in general terms, this is one of the main information gaps detected in the system because it is very difficult to identify the specific education expenditure from states other

than transfers or programmes from the federal authority and then, in turn, how these resources are channelled to schools.

Both the Federal and the Federalized Spending Programmes finance current as well as capital expenditures. In basic education, the Federal Programmes come mostly in the form of compensatory and pro-equity measures, subsidies and provision of various goods and services to schools. The Federalized Spending Programmes support daily operations of education services with 90% of them allocated to financing the payroll of educational staff (*servicios personales)* in basic education (INEE, 2018[3]). In upper secondary education, the federal government finances directly and entirely some schools (including the COLBACHs in Mexico City, and various baccalaureate and study centres). It also provides indirect funding through subsidies for federalized schools (including, for instance, CECYTE and TELEBACH), which fall under states' responsibility. Overall, the allocation of resources can be uneven.

One of the major challenges in terms of funding in the Mexican system is that there is no set scheme for school funding: some schools are financed by state-level authorities, while others receive funds directly from the Federal government –including from SEP, other secretariats or from federal agencies– in return for which they are put under federal supervision. As mentioned, States manage and disclose their budgets according to own practices, which makes it hard to have a detailed picture of how federal and state funding transits to schools (INEE, 2018[3]). Resources may also come to schools through programmes with specific goals and an attached budget. OECD and national evidence points out that programme-based funding was a source for inequity across schools and municipalities (OECD, 2018[21])

The teacher workforce

Given Mexico's complex education system, there is a large teaching workforce composed of teachers, school leaders, technical pedagogical advisors (ATPs) and supervisors (more than 1.2 million in basic education) working across the country. Teachers perceive themselves as a rather well-regarded profession (49%) in 2013 and benefit from nationally competitive statutory salaries (OECD, 2018[21]).

Still, teachers in Mexico face challenges and work in demanding environments, more demanding than the OECD average, with longer teaching hours as well as a higher teacher-to-student ratio (1 to 27 in Mexico compared to 1 to 15 on average) (OECD, 2018[21]). In 2016-2017, 54% of primary schools in Mexico were of multiple grades (*multigrado*), which means that teachers cater to students at different levels of primary education in the same class. Also, a higher share of teachers in Mexico in the international TALIS comparative study in 2013 reported working in schools where 30% or more of the students are from socio-economically disadvantaged background. 57% of teachers in primary education, 44% of teachers at lower secondary level and 43% of teachers at upper secondary level reported this in comparison to the TALIS average of 16, 20, and 14%, respectively (OECD, 2014[23]).

In terms of initial preparation, the majority of teachers in Mexico have received some initial teacher preparation. As in many other countries, teacher education in Mexico is organised by level: one for teachers in basic education (this includes pre-primary, primary and lower secondary schools), and one for teachers in upper secondary education. Most basic education teachers receive their initial preparation in Teachers' Colleges (*Escuelas Normales),* reaching around 500 across the country. Presently, students in *Normales* spend about one third of their education on general pedagogy, one third on subject-

specific training and one third in school placements. This report does not cover initial teacher education, but focuses its analysis on entry mechanisms and continuous professional development. Upcoming OECD reports covering higher education in Mexico will provide elements on initial teacher training.

Still, in 2013, Mexico had the lowest proportion of teachers who reported having completed a teacher education or training programme (62%) among countries participating in TALIS. Many teachers in 2013 reported not feeling well-prepared for the challenges of their job. This may be because until around 2008, Mexico did not have a national licensing mechanism for teaching. Following the first national examination for beginning teachers implemented in 29 states (out of 31) and the Federal District. The results in the 2008/09 and 2009/10 cycles were discouraging: only around 30% of the teachers successfully passed the test (OECD, 2010[15]).

Prior to this, the process of selecting teachers was not very transparent across the country. Some states used licensing mechanisms, others allocated them through a teacher examination, while others allocated following the recommendations of mixed commissions (with participation from the State Education Authority and from SNTE). In 19 states, no formal licensing strategy was applied, other than obtaining the graduate certificate from a *Normal* or other ITP institution (Guevara and Gonzalez, 2004). In states with no formal licensing mechanisms, teacher posts were *de facto* given in agreement with and mainly controlled by the union. While SNTE itself formally followed the internal rules stipulated in their norms (*estatutos)* to allocate posts (based mainly on factors such as length of time in the profession and teacher training), the mechanisms were not transparent and were sometimes perceived as unequal and highly politicised. Under the schemes, in some states, teachers were able to "buy" their posts; some had the right to "sell" or "offer in heritage" their permanent posts to whomever they chose, including relatives (OECD, 2010[15]). The situation has largely evolved, with the introduction of a Professional Teaching Service in 2013 that has started assessment practices for new teachers entering into the profession, reviewed in Chapter 4.

In terms of school management, leaders also face complex school environments, leading multigrade or rural schools, having lack of sufficient resources and low levels of autonomy to respond to their school needs. In Mexico, the school director is in charge of the functioning, organisation and management of the school. The school director's main tasks are to define goals, strategies and school operation policies; to analyse and solve pedagogical problems that may arise; and to review and to approve the work plans elaborated by teachers (OECD, 2010[15]), and now to work with the pedagogical councils and participate in the *Consejos de Participación Social* at the school level.

In the past, despite candidates having to meet a certain set of formal requirements to enter into the profession, it appeared that school leaders were often nominated by SNTE or by a joint commission SEP-SNTE through non-transparent procedures and criteria (OECD, 2010[15]). This changed following the creation of a teaching career that includes selection mechanisms for new school leaders as well as appraisal processes for those in the post. The curricular reform has also given some autonomy to schools and their leaders to choose courses according to their local needs, as a particular way to contribute to the improvement of the quality of compulsory education by promoting student´s learning. This action is also reinforced through the regulation and coordination of the Teacher Professional Service that ensures, based on the appraisal mechanisms, the abilities of the teachers and managers (through the National Coordination of the Teacher Professional Service, CNSPD).

Assessment and evaluation practices

Evaluation responsibilities are shared by several actors. At the federal level, the Secretariat of Public Education (*Secretaría de Educación Pública*, SEP) and the National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación*, INEE) are in charge of developing and coordinating evaluation throughout the system. External monitoring of schools is undertaken at the subnational level by the supervision systems of individual states. Around 80% of primary schools and 50% of lower secondary schools are inspected annually, with the main focus on the monitoring of compliance with rules and regulations. The results of inspections are not made publicly available and not widely shared among educational authorities. According to PISA 2015, schools in Mexico are slightly less likely than average to conduct a self-evaluation (86.1% compared to the OECD average of 93.2%) while levels of external school evaluations are average (73.9% compared to the OECD average of 74.6%). The introduction of Technical School Councils (*Consejos Técnicos Escolares*) and the implementation of the Improvement Route for schools (*Ruta de Mejora*) may change this, as it is based on continuous self-evaluation practices.

To evaluate and monitor the Mexican educational system, an important aspect of the Mexican reform of 2013 was the transformation of INEE into an autonomous body within the Mexican State and conferring it the coordination of the System of National Educational Evaluation (*Sistema Nacional de Evaluación Educativa*, SNEE) through article 14 of INEE's Law. This was done to guarantee the provision of quality educational services (Article 3 fraction IX of the Political Constitution of the United States of Mexico, *Constitución Política de los Estados Unidos Mexicanos*). INEE took, just after the Education reform was enacted, initiatives to establish the formal organization of the SNEE. The conceptual framework of the PNEE- National Policy on Educational Evaluation (*Política Nacional de Evaluación de la Educación*) was also prepared, defining its activities and strategies. The PNEE has defined seven axes of action, with specific objectives that guide the different evaluation initiatives.

INEE also supported the different States of Mexican Republic in the construction of their specific documents: o PEEME - State Programs for Educational Evaluation and Improvement. In other words, INEE built in a short period of time all the legal architecture of the SNEE, including those in at sub-national level in collaboration with the corresponding authorities. Other important components of the evaluation system in Mexico, such as teacher appraisals or PLANEA (for students) are discussed in this report when dealing with the reform package in education starting in 2012-2013.

A teacher appraisal system that has an improvement component (emphasising developmental evaluation) and a career progression component (a model of certification of competencies for practice within and across career paths, associated with career advancement and based on a greater variety of instruments) can help to strengthen the teaching profession (OECD, 2014[23]). In 2013, Mexico introduced a comprehensive teacher appraisal system, covering completion of probation as well as regular appraisal of teacher performance as well as school leaders' appraisal. Evaluations of promotions and reward and incentive schemes focused on school improvement. INEE became in charge of the approval of the evaluation tools for teacher appraisal. The appraisal systems of teachers and school leaders have been modified to address some concerns from stakeholders, including, for example, articulating the appraisal to teachers' daily lives and improving teacher professional development. Providing teachers with timely and evidence-informed feedback is important to strengthen the profession in Mexico, as

demonstrated by a larger than average proportion of Mexican teachers who reported that the feedback they received has improved their teaching practice (86.3%, compared to the TALIS average of 62%) (OECD, 2018[21]).

Student outcomes: achieving quality with equity

Attainment and completion of upper secondary education

As Mexico prepares its students for the 21st century, attainment and completion rates up to upper secondary education should continue improving its ascendant trajectory (OECD, 2017[7]).

In an attempt to raise educational attainment levels, Mexico made pre-primary education compulsory starting in 2008-2009, and raised the compulsory-school-leaving age to 17 (to the completion of upper-secondary education) in 2012. The duration of compulsory education is 14 years, longer than the OECD average (OECD, 2018[21]). In this effort made by Mexico to improve enrolment and completion rates, multigrade schools have played an important role, as shown in Table 1.2 (below), as they represent an important proportion of both the total of schools and students at compulsory levels.

Table 1.2. Student enrolment and completion in Mexico, 2016-17

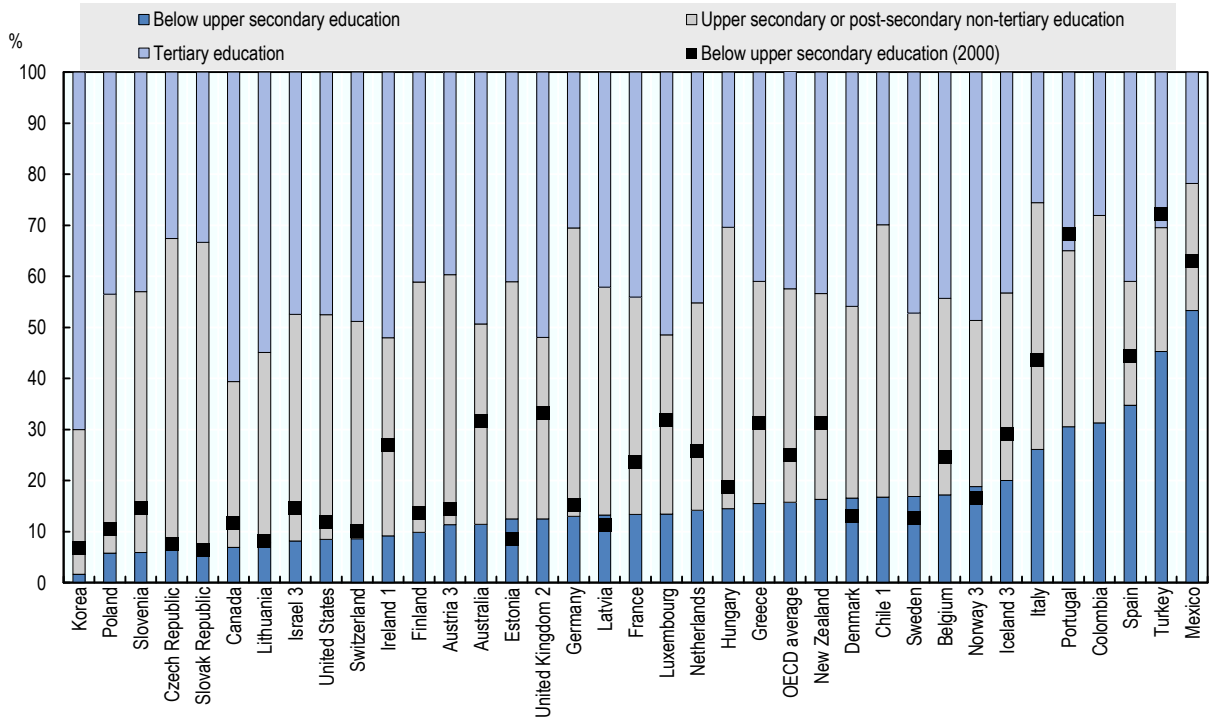
Indicator	Number
Number of multigrade schools ECEC to EMS	101 517 (54.4%)
Number of students in multigrade schools[1/]	3 669 062 (19.2%)
Enrolment rate in ECEC (before 5 years old)	69.5%
Enrolment rate in primary education	105.4%
Enrolment rate in lower secondary (secundaria)	99.9%
Enrolment rate in upper secondary (EMS)	76.6%
Completion rate in lower secondary (secundaria)	85.5%
Completion rate in upper secondary (EMS)	66.7%

Source: SEP (2017[13]), *Estadística e Indicadores Educativos Nacionales e Internacionales, 2016-17.*

Among OECD countries, Mexico has the largest share of 25-34 year-olds whose highest educational attainment is below secondary education (Figure 1.4), but this masks considerable progress made in the country in recent years, as it has declined by 10 points from 63% in 2000, increasing attainment in upper secondary and tertiary education. Mexico made upper secondary education compulsory in 2012, in order to attain universal coverage by 2022, and enrolment rates have increased (OECD, 2018[21]).

Figure 1.4. Educational attainment of 25-34 year-olds, 2000-2016

Proportion of 25-34 year-olds per level of education



Source: OECD (2017[24]), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en.

StatLink http://dx.doi.org/10.1787/888933556957

Holding a higher education degree makes a difference in the labour market in Mexico. The 22% young Mexicans who held a tertiary degree in 2016 had a significant advantage over their counterparts with lower or no degree in terms of pay. Tertiary degree holders earned a wage premium of 102% vs. 56% on average across OECD countries, and 7 out of 10 held a stable contract compared to 2 in 10 for those who did not complete compulsory education (OECD, 2018[21]). Nevertheless, and despite the increase in enrolment rates, the share of Mexican adults with upper secondary and tertiary education remains below the OECD average and upper-secondary drop-out rates are very high. This leaves the country with a comparatively low-skilled workforce (OECD, 2017[9]).

Student performance

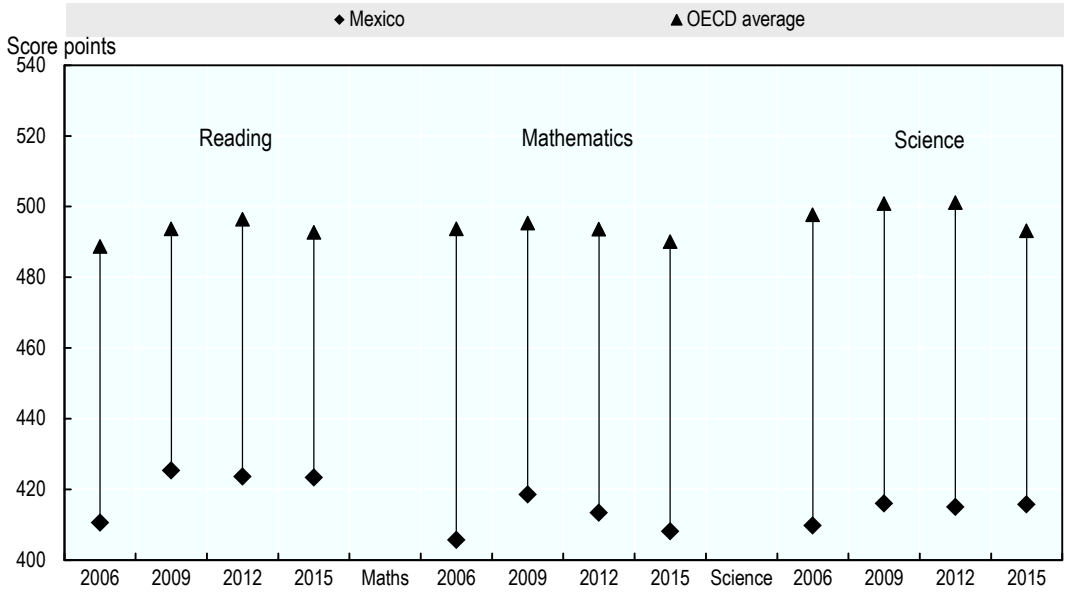
Mexico 15-year-old student performance has shown improvement since it first participated in the Programme for International Student Assessment (PISA), although the country still lags behind other OECD members. (OECD, 2018[25]) (OECD, 2017[26]). At the same time, Mexico has increased enrolment rates and is one of the countries where the impact of socioeconomic background on students' performance on PISA has been decreasing.

More concretely, the country has improved its performance in mathematics by 5.3 points every three years since 2003, but it has stagnated in both science and reading over the same period (OECD, 2018[21]). However, this trend data needs to be interpreted with

caution in light of the expansion of enrolment in secondary education over the past decades, which is reflected in PISA. Between 2003 and 2015, Mexico added more than 300 000 students to the total population of 15-year-olds eligible to participate in PISA. This expansion in education opportunities, which is due to important public efforts to cater to equity and enrolments, make it more difficult to interpret the changes in mean scores in PISA over time. Typically, as populations that had previously been excluded gain access to higher levels of schooling, a larger proportion of potentially low-performing students will be included in PISA samples. This may be reflected in the changing scores across the years. (OECD, 2018[25]).

The trends also show that the share of students performing below Level 2 in PISA, which represents the minimum level considered to function in today's societies, has decreased by 7 points on average since PISA 2006. At 48%, it was still the highest share among OECD countries in 2015. Inversely, the share of high-performing students (above Level 5) was the lowest in the OECD group (OECD, 2018[21]).

Figure 1.5. Trends in PISA performance in Mexico, 2006-15



Sources: OECD (2016[27]) , *PISA 2015 Results (Volume I): Excellence and Equity in Education*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en.

Looking at national student learning assessments, the latest results of the National Programme for Learning Assessment (PLANEA), which is a standardised student assessment that measures the learning progress amongst Mexican students in the subjects of Language and Communication and Mathematics, offer some worrying results. At the national level, 40% have only a basic mastery of language and communications (Level II) while 33.8% have an insufficient level (Level I). The pattern is similar for maths scores, although with an even higher share of low performers (64.5% at Level I at the national level). A worrying factor for public education is that in both language and maths, the bulk of higher performers (Level III and IV) are found in private schools, with only 18.4% of students in general public education displaying a satisfactory level in language (SEP, 2018[28]). So Mexico's education is still characterised by contrast and polarisation.

Equity and inclusiveness

Fostering better and more equitable education outcomes (i.e. outcomes that are not associated with students' socioeconomic background) is crucial to building a productive, fair and cohesive society in Mexico in the future. Mexico has made considerable policy efforts to make its education system more equitable and inclusive. The constitutional reform of 2013 made quality education a right for all Mexicans. The efforts continued with the Programme for Inclusion and Educational Equity (*Programa para la Inclusión y la Equidad Educativa*, 2014) directed at indigenous and special need students, and the expansion of *PROSPERA* for more disadvantaged families to benefit from cash transfers by sending their children to schools. The federal programmes *Escuelas de Calidad* and the *Programa de Reforma Educativa* have included schools in rural, indigenous and marginalised areas a funding priority as well.

However, the Mexican system lacks stronger social inclusiveness: students are more likely than in other OECD countries to attend a school where their peers have a similar socio-economic background. Results from PISA 2015 show that the country's variation in students' performance is rooted in differences between schools. More specifically, results on PLANEA show that students of indigenous parents score consistently lower than non-indigenous students. The point difference doubles when the students are in community education rather than in general public education (PLANEA 2017).

Results in PLANEA 2017 also unmask the regional disparities. For the Spanish language test at lower secondary level, the difference between the best performing state (Coahuila, with 515 points) and the lowest (Tabasco, with 457 points) in terms of average score was 58 points (the national average score was 495 points). These scores may change substantially from one year to the next, however (SEP, 2018[29]).

Recent education policy reforms

In 2013, Mexico launched a comprehensive reform package of its education system aimed to improve quality for all Mexican students. The reforms stemmed from an agreement reached by the main political forces on their vision for the country. The objective was to guarantee continuity of reforms in key domains of public policy (*Pacto por México*, 2 December 2012), including fiscal, financial, electoral and education sectors (OECD, 2017[8]). In education, the Pact aimed to place education as a high priority in the national agenda, aiming to improve the quality of basic education, to increase enrolment and improve the quality of upper secondary education, and to rebalance the role of the Mexican state in the national education system.

The constitutional reform at the beginning of 2013 and subsequent legislations have addressed an impressive number of issues. First, quality education (*educación de calidad*) became a constitutional right for all Mexicans (Article 3 of the Political Constitution of Mexico, modified by decree DOF 26-02-2013). Furthermore, equity was established as a core component of the quality of education by Article 8 of the General Law of Education (*Ley General de la Educación*, LGE, modified by decree DOF 11-09-2013).

Following the constitutional reform, one of the first laws passed in September 2013 created a Professional Teacher Service (*Servicio Profesional Docente*, SPD) based on merit for teachers, principals, pedagogical support staff (*asesores técnico pedagógicos*) and supervisors. The SPD is based on competency-based profiles; and establishes mechanisms for entry, promotion, incentives and permanence for teachers and system leaders (*Ley del Servicio Profesional Docente*, 11-02-2013). At the same time, it

established a new information and management system in education (*Sistema de Información y Gestión Educativa,* SIGED, 2015). It also defined a new school improvement support service called *Servicio Técnico de Asistencia a la Escuela* (SATE) that provides support in school management, pedagogical advice and is based on a new role for school advisors (ATPs) and supervisors.

Mexico also took a noteworthy step forward when it provided constitutional autonomy and new attributions to the National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación,* INEE). The central rationale of this reform was to emphasize the role of evaluation as a tool to improve the quality and the equity in education policies, processes, and outcomes. Another important objective was to ensure the independence of the institution with the responsibility to assess the state of education in the country. The main role of INEE is thus to hold the entire education system and its actors accountable for their contribution to educational improvements (*Ley del INEE,* 11-02-2013).

As part of the reform package on subsequent years, there was a consultation process that generated a New Educational Model, (the *Nuevo Modelo Educativo*, NME). Its goal is to reorganise the education system and make it fit for its new mandate to provide quality education with equity and prepare all students for the 21st century. The NME includes mechanisms such as the Strategy for Equity and Inclusion in Education (*Estrategia de Equidad e Inclusión Educativa*), which aims to give coherence to the government's action for equity in education; and the School at the Centre strategy (*La Escuela al Centro*) which coordinates several mechanisms to reduce the administrative load on schools and to provide them with greater autonomy to foster their active participation as a key actor in educational change.

As part of the *Nuevo Modelo*, a curricular proposal was also published and went through consultation and discussion from 2014 to 2016. This resulted in a new curricular reform, the Key Learnings for Integral Education (*Aprendizajes Clave para la Educación Integral*), published in its final version in 2017. The new curriculum aims to respond to learning needs for the 21st century, to adapt to Mexico's socioeconomic and cultural context, and to align with the vision and the purpose the country set for its education (*Los fines de la educación*, discussed and published between 2014 and 2017).

One major challenge as the reforms progressed has been to balance attention and resources between all of them, and to maintain their coherence so they contribute to enhancing quality with equity. However, there appears to be support for the overall reform strategy. A household survey from 2017 reported by SEP asking the question whether the interviewed person agreed or disagreed with the education reform showed that 64% were in agreement, and 20% in disagreement, with 16% not responding to the question (BCG, 2017[30]).

Overall, the country has so far shown its willingness and capacity to bring necessary adjustments to its policies. For instance, after the reforms' legal cycle started with the two structural laws on the Teacher Professional Service and the INEE, the SEP took action to guarantee that the consultation on the New Educational Model and especially on the new curriculum started in 2014. Other examples of such adjustments include the revision of the teacher performance evaluation (*evaluación del desempeño docente*) by INEE in 2015, which allowed for improvements of the process between 2014 and 2017, or the relocation of the General Direction for Continuous Training within SEP.

These reforms have aimed to coordinate, leverage and complement existing initiatives with new measures to enhance education quality and equity for all students. Given the wide diversity of the country in economic, social, cultural and geographic terms, efforts have been and continue to be made to face an array of different challenges. In its recent reforms, Mexico acknowledges that its education system still needs support on basic areas, as demonstrated by the large amounts of resources invested in schools' infrastructure –through programmes such as *Escuelas al CIEN* (ECIEN); or in the government's efforts to increase enrolment rates and attainment until upper secondary education. At the same time, Mexico is also turned towards the future, for instance with a state-of-the-art curriculum for the 21st century, and with its strong willingness to collaborate better with schools and stakeholders to make education policies more responsive to students' learning needs.

Looking towards the future

Mexico's education system is large and complex, and has made a large shift from coverage to also focusing on providing quality education for all. To continue on this path, it needs to cater to its large youth population, its indigenous and rural population, and ensure that all schools across the country are ready to respond.

In fact, from an education system that prioritised governance and vested interests, where there was lack of transparency in a number of areas, for example teacher recruitment, Mexico has been undertaking important reforms that have achieved much progress in a relatively short amount of time:

- placing quality with equity at the heart of the educational agenda and objectives of the education system, through its constitutional and legal reforms, and introducing a new equity programme that brings together a range of programmes coherently
- providing learning environments that are fit for the 21st century and respond to students' needs with the *Nuevo Modelo Educativo* and the curricular reform
- ensuring that schools are run and staffed with high quality professionals that receive adequate support having a teacher career service (the *Servicio Profesional Docente*) that is clear and allows for a professional career and with the creation of a school improvement service SATE
- introducing autonomy to INEE and responsibility for coordinating the national evaluation system (SNEE) and designing evaluation and assessment frameworks such as PLANEA that support schools and policy makers to ensure effective student learning and enhance the quality of education for all
- building information and data management mechanisms such as SIGED that should allow not only access to relevant information of the education system but also to serve as a basis for a more precise management of the system.

The reforms need time to mature and flexibility to be adjusted as required to ensure they deliver quality education for all student learning. This requires a balance between policy design and implementation on the ground. On one hand, this can be accomplished by continuing to:

- Prioritise equity with quality for all students.

- Implement the curriculum for 21st century learners.
- Support the professionalization of teachers and schools.
- Ensure that evaluation and assessment are focused on improvement and balanced between formative and accountability purposes.

Yet, beyond good policy design, it is important to ensure that the policies reach schools and classrooms and have direct positive impact on student learning as they are being implemented. For this to happen, there are a range of issues to consider:

- Policies will be effective and will have a more lasting positive impact, if they are developed and implemented through inclusive stakeholder engagement that it is adapted to governance structures.
- Clear strategies are needed to define the actors, timing, responsibilities and mechanisms to monitor policies and identify eventual needed adjustments.
- The focus should be on student learning, making sure that all schools and teachers have the support and resources to implement properly.

In Mexico, like in many other countries, there is a considerable distance between national policymaking and the learning that happens in schools. SEP has to cater to the individual needs of a large number of schools, students and teachers across the country through their national policy making. This requires both substantial resources and support from subnational authorities. In other words, under the current governance system, no reform in education could be effectively implemented without getting the involvement and support of subnational authorities (state's governments) to reach schools.

Federal entities (states) and schools require strong capacity, with clear objectives and support to evolve and respond to the needs the system has in light of the recent policy reform package. The states and different stakeholders have an important role to play. In complex education systems such as Mexico, "implementation" is not only about executing the policy, but also about building and fine-tuning it collaboratively. With an important set of reforms, Mexico needs to make sure that those involved in education policy and practice do not suffer from reform fatigue, and that new waves of potential reforms are carefully assessed to protect progress already made, keep on track with good practices and adjust/correct those aspects that require improvement.

These issues need to be considered for Mexico to continue on its positive trend towards educational improvement. Progress made on this reform trajectory can be enhanced by focusing efforts on refining not only the design, but also the implementation process itself.

Following this overview and analysis of the current situation and recent reforms adopted in Mexico, this report reviews and proposes a set of recommendations around the four major dimensions of the education reform package initiated in Mexico during 2012-2013 and mentioned before:

- providing equity with quality in Mexican education
- providing 21st century learning to all students
- supporting teachers and schools
- focusing evaluation and assessment on schools and student learning.

Each specific topic is presented in a separate chapter, structured around the discussion of its characteristics, the extent to which this particular policy development is aligned with international good practices, and a final section reflecting on aspects for future policy development. A concluding chapter provides an overview of the assessment and recommendations with a set of reflections on future policy development and general considerations for implementation.

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Chapter 2. Providing equity with quality in Mexican education

This chapter discusses recent policies developments to enhance both quality and equity in education for all students in the country. It presents and discusses general and targeted policies, such as those providing universal access to education, funding, or more targeted measures to support disadvantaged students and population groups, as well as investments in school infrastructure. It assesses the extent to which these align to international good practice and have contributed to greater equity in education. After reviewing challenges remaining it provides policy insights that can help Mexico to continue its path to close the equity gap in education and raise its overall quality.

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

Introduction

Among the key objectives of education systems across the world is attaining quality learning for all their students. This entails ensuring that all children have the opportunity to learn and reach their potential, that they have high quality content and are prepared for their future. Ensuring equity while aiming for high quality education has been a concern of many education stakeholders in Mexico.

To mark its commitment to enhancing its education services for all, Mexico enshrined the right of all students to an education of quality in its General Law of Education (see Box 2.1). The State must therefore ensure the conditions that allow all students to achieve their learning potential. Efforts encompass a wide range of programmes focused on responding to students' different needs, especially helping the most disadvantaged (such as PROSPERA, CONAFE or others for indigenous populations), as well as investing in school infrastructure (such as ECIEN and the Education Reform Programme, PRE). The recent strategy for equity and inclusion in education (*Estrategia para la Equidad y la Inclusion en la Educación*, formalized in the New Educational Model, 2017) made some efforts to build some coherence among these programmes. Overall, the country has laid some of the necessary bases for all students to learn in safe, sanitary and learning-friendly environments.

This chapter analyses recent policies in line with Mexico's constitutional mandate of enhancing both quality and equity in education for all students to succeed in the country. More concretely, this chapter:

- Offers an overview of equity issues in Mexico, considering equity in terms of fairness and inclusion.
- Discusses the importance of offering universal access to an education of quality.
- Explains the importance of guaranteeing both equitable resources in education and basic capacity for schools to respond to the needs of their learners.
- Analyses the importance of reinforcing coherence among a range of targeted programmes for disadvantaged populations.
- Emphasizes the relevance of providing for all student safe environments that are adequate to learning.

To do so, this chapter is divided in three major sections. Following this introduction, the first section discuses to what extent the reform aims to improve equity in education. A second section discusses progress in this area analysing multiple programmes and resources Mexico has devoted to ensure equity in the provision of public services, including education. The chapter concludes with a section that reflects on remaining challenges in terms of equity and proposes recommendations to address them.

Policy issues to provide equity with quality in education in Mexico

High performing education systems have recognised that quality in education requires combining quality with equity, meaning that there is no quality without equity (Figure 2.1). Providing equity in education means taking into account the fact that all students do not have the same opportunities to complete or do well in school, and then organising educational services to address this issue. It means that personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to

achieving educational potential (fairness) and that that all individuals reach at least a basic minimum level of skills (inclusion) (OECD, 2012[1]). This requires the recognition that not all students are the same, and therefore in addition to having equity as a system level priority, carefully targeting resources can ensure more support to the more disadvantaged in economically, socially or geographically. In addition, settings high expectations for all students is a policy that can also contribute to the objective of inclusion. Mexico is targeting equity with quality in education through the policies reviewed in this chapter and through the curriculum reform covered in Chapter 3.

Figure 2.1. Science performance and equity, PISA 2015

Mean performance in science and strength of the socio-economic gradient.

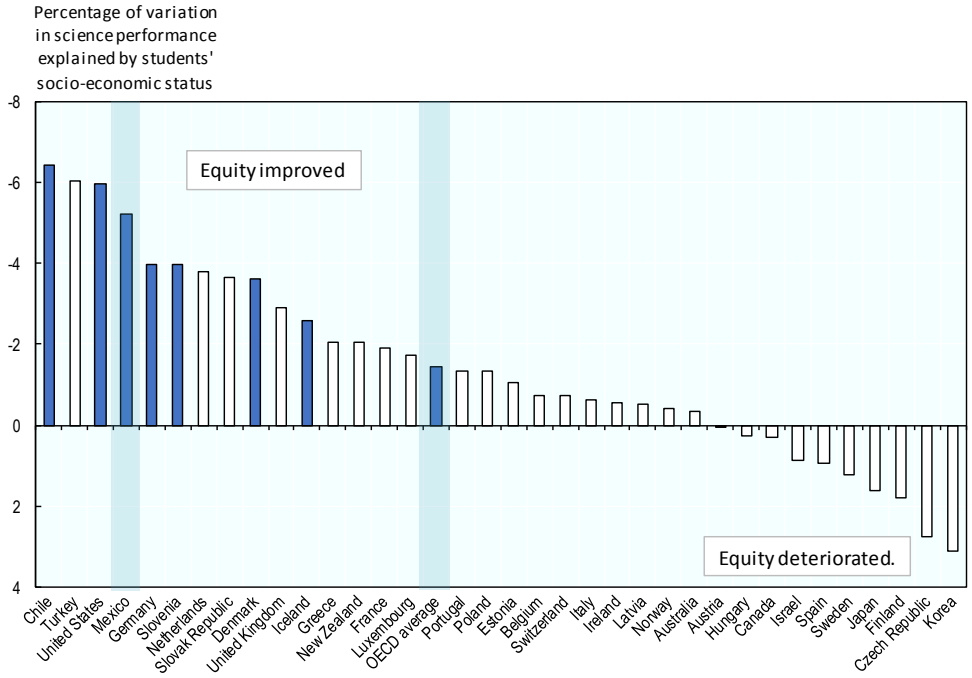
Notes: B-S-J-G (China) refers to the four PISA-participating China provinces: Beijing, Shanghai, Jiangsu and Guangdong. FYROM refers to the Former Yugoslav Republic of Macedonia. Argentina: Only data for the adjudicated region of Ciudad Autónoma de Buenos Aires (CABA) are reported.
Source: OECD (2016[2]), *PISA 2015 Results (Volume I): Excellence and Equity in Education*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264266490-en.

StatLink http://dx.doi.org/10.1787/888933432747

Improving equity in a challenging context

Overall, equity in education has been improving in Mexico, even if there is room for improvement (as in most countries). In terms of learning outcomes, the impact of students' economic, social and cultural status on their performance in science decreased from 2006 to 2015 for 15-year-olds, according to PISA (OECD, 2016[2]). The country is among those where equity has improved the most between 2006 and 2015. Figure 2.2 displays the change in the impact of socio-economic status on students' science performance in PISA, in which Mexico comes 6th among countries where equity improved.

Figure 2.2. Change in the percentage of the variation in science performance explained by socio-economic status, PISA 2006-2015



Note: Values that are statistically significant are indicated in blue.
Source: OECD (2016[2]). *(2016), PISA 2015 Results (Volume I): Excellence and Equity in Education*, http://dx.doi.org/10.1787/9789264266490-en.

The improvement in equity shown for Mexico in Figure 2.1 and Figure 2.2 should be considered cautiously, however. Indeed, PISA can only capture the results of the youth who are in school at age 15 and does not consider the more than 40% of the 15-to-17 age group who were not enrolled in school in Mexico in 2015. Also, systematic differences associated with students' and schools' characteristics remain, which prevent from granting access to quality education, providing the means to learn, and ensuring equal learning opportunities for all.

Disadvantaged students in Mexico are over represented among low performers, a similar trend to other OECD countries. In PISA, Mexico's disadvantaged students are more than twice as likely to perform low in science as compared to non-disadvantaged students, and more than three times as likely in mathematics, which is around the OECD average. In

reading, the difference is starker since disadvantaged students are more than 4 times as likely to perform low than non-disadvantaged students. Like in other Latin American countries (except Chile), the socio-economic status reduces the chances for Mexican disadvantaged students to achieve at high levels, to a greater extent than it protects advantaged students from relatively low levels of performance (OECD, 2016[2]). Data from the national standardized tests PLANEA show systematic and large differences in students' performance: for instance at the end of lower secondary education, students with indigenous background score consistently lower than their non-indigenous classmates in mathematics. The number of students who score "insufficient" on PLANEA (Level I) is much higher in smaller and more marginalized localities: these very low achievers represent 61.8% of students in highly marginalized areas, compared with only 34.2% of the students in non-marginalized areas (SEP, 2018[3]).

The education system in Mexico is one of the largest in the world, and extremely diverse: in 2016-2017, 225 757 schools of basic education attended to the needs of 25.8 million students (data provided by SEP to the OECD). As outlined in the Constitution (Article 3) and in the country's education vision embodied in the document *Los fines de la educación en el siglo XXI* (see Box 3.2 in Chapter 3 of this report), the system must provide high-quality education to all young Mexicans (SEP, 2017[4]). Yet the diversity in students' and in schools' contexts and conditions mean students may have different learning needs in order to achieve their potential. This can lead to unequal education outcomes if this diversity in needs is left unattended. Among the factors of inequality of education in Mexico, the following can be emphasized:

- **Socioeconomic deprivations**: overall, socioeconomic inequalities are high in Mexico. The country's Gini index of 43.4 places it among the most unequal countries in the OECD in 2016 (The World Bank, 2016[5]). Inequalities are even starker between the top and the bottom deciles, for the richest 10% earn 21 times more than the poorest 10% (OECD, 2016[6]). Despite the decrease in the impact of students' socioeconomic status on their PISA results, the socioeconomic gradient is still strong on education outcomes as well. For instance, it is estimated that students from wealthier backgrounds are close to 3 times more likely to finish upper secondary education than their less privileged peers. This is an encouraging decrease from the factor of 5.5 in 2000 (OECD, 2016[6]). The overall attainment rate of 37% for upper secondary education among adults aged 25-64 is still much lower than the OECD average of 74%, however (OECD, 2017[7]).

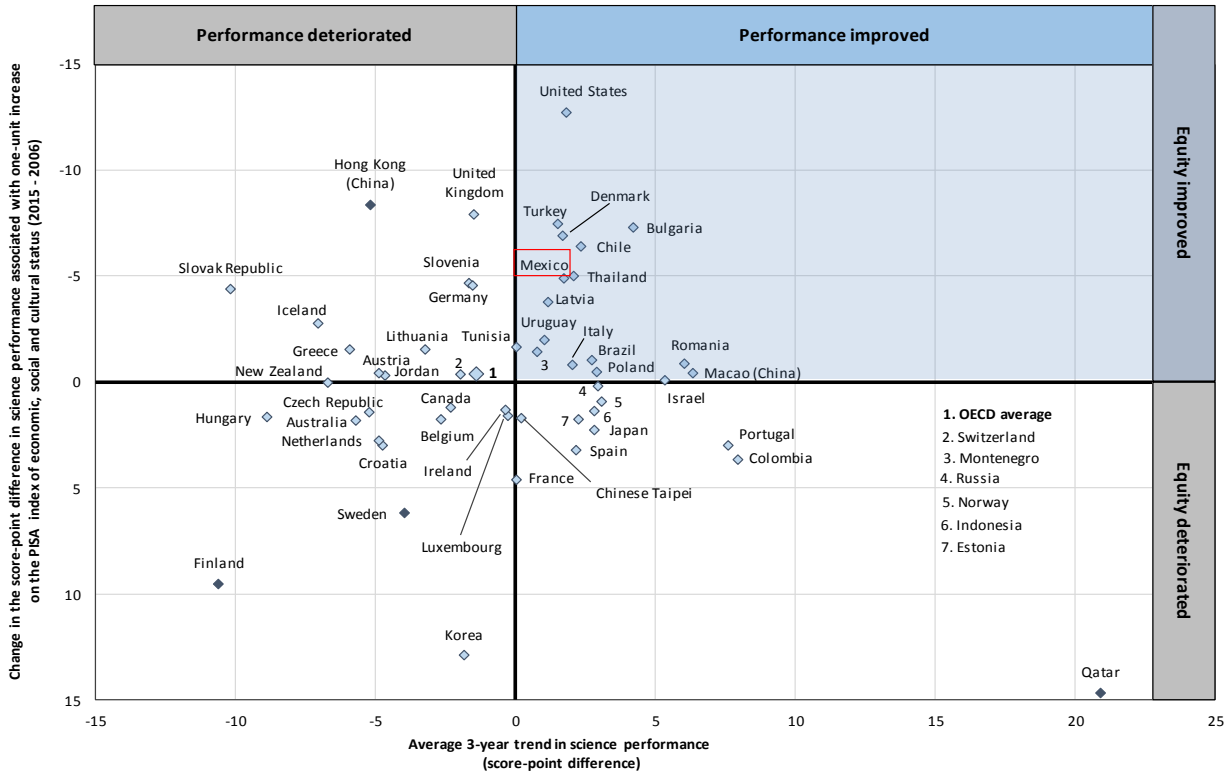
- **Ethnicity and languages**: the indigenous population makes up 12% of the Mexican population in 2018, and 6.5% speak one of the 68 indigenous languages. 9 out of 10 indigenous live in high or very high marginalization[1], and 8 out of 10 live in poverty (INEE, 2018[8]). Non indigenous students hold a steady advantage, as they have been almost twice as likely to complete upper secondary education as indigenous students between 2010 and 2014 (El Colegio de México, 2018[9]). Results on PLANEA also show that students of indigenous background often score lower than their fellows from non-indigenous backgrounds (SEP, 2017[10]).

- **Accumulation of risk factors in marginalized areas:** in Mexico like in other Latin American countries, inequalities tend to accumulate, a vicious cycle that both affects and is worsened itself by education inequalities (OECD, 2017[11]). The latest PISA results showed that the variation in performance between Mexican schools is strongly associated with their students' socio-economic background (OECD, 2018[12]). The states of Chiapas, Oaxaca, Michoacán,

Guerrero and Veracruz, which all lag behind in education outcomes, also share high levels of poverty (INEGI, 2016[13]; CONEVAL, 2016[14]). Living in a rural area has made a student at least twice less likely to complete upper secondary education than an urban student since 2005 (El Colegio de México, 2018[9]). It is acknowledged that students in marginalized areas – including rural, remote, poorer regions – usually attend schools that accumulate deficiencies (SEP, 2017[10]). For instance, the states of Chiapas, Durango and Zacatecas had a high proportion of multigrade schools (*multigrado*) compared with the national average of 44% (SEP, 2017[10]; Robles Vásquez and Pérez Miranda, 2015[15]).

Mexico has been undertaking and reinforcing measures to support equity with quality for all students, shown in progress in enrolments, completion and achievement, and further policy investments can be made over the longer term to ensure an equitable system that delivers quality learning for all students. International evidence points out that equity in education does not need come at the expense of student performance. PISA results show that, between 2006 and 2015, the strength of socio-economic gradient weakened in a number of countries that also managed to maintain their average performance in science, including in Mexico (OECD, 2016[2]). These countries are displayed in the top right corner in Figure 2.3.

Figure 2.3. Enhancing equity in education while maintaining average performance in science, PISA 2006-2015



Source: OECD (2016[2]). *(2016), PISA 2015 Results (Volume I): Excellence and Equity in Education*, http://dx.doi.org/10.1787/9789264266490-en.

StatLink http://dx.doi.org/10.1787/888933432843

Investing in early, primary and secondary education for all, and with particular attention to children from disadvantaged backgrounds is both fair and economically efficient (OECD, 2012[1]). According to one estimate, if all 15-year-olds in the OECD area attained at least Level 2 in the PISA mathematics assessment, they would contribute over USD 200 trillion in addition economic output over their working life (OECD, 2010[16]).

Countries invest in equity through general interventions that aim to benefit all students with a strong equity perspective, or by investing directly in specific subgroups or schools where disadvantaged prevail (OECD, 2015[17]). Similarly, Mexico has adopted key policy measures directed towards enhancing equity in education, including system-wide policies and targeted programmes to sustain equity, which it has been trying to approach through a coherent strategy for equity and inclusion. These different measures show the importance Mexico has given to policies that target equity for all students across the country.

Aiming for excellence in education translates into achieving both equity and quality for all students. This dual goal requires general and specific policy focus. Students vary in terms of their economic and social background, their ethnic and cultural origins, or in the place they live in, and often the more deprived have poorer education outcomes. Their specific situation needs to be taken into account when providing education, as these students are at greater risk of not completing their education as students who are more privileged (OECD, 2012[1]). As Mexico progresses toward better quality with more equity in education, the country faces two challenges: providing education equitably (i.e. granting more support to the most disadvantaged), and establishing equity as a guiding principle and effectively putting it into action in current and upcoming policies.

Mexico's recent system-wide policies to sustain equity in education include:

- the inscription in the law of the right of all to an education of quality and the emphasis on the role of equity as a key component of education quality (Article 3 of the Political Constitution of the United States of Mexico, *Constitución Política de los Estados Unidos Mexicanos*, 2013; and Articles 2, 3 and 8 of the General Law of Education, *Ley General de la Educación*, 2013/2017)
- the obligation to observe the superior right of the child is enshrined in the Constitution (Article 4) and reiterated with an explicit mention to equity in the General Law on the Rights of Girls, Boys and Teenagers (*Ley General de los Derechos de niñas, niños y adolescentes*, 2014)
- the extension of compulsory education to upper secondary level (*Educación Media Superior Obligatoria*, 2012), and the Movement Against Dropout (*Movimiento Contra el Abandono Escolar*, 2013)
- the establishment of minimum standards for school operations (*Normalidad Mínima de Operación Escolar*, 2014)
- the expansion of the Full-Day schooling model (*Escuelas de Tiempo Completo*, ETC, 2006.

The country has also developed a considerable number of targeted programmes to cope with inequalities in education. Recently, Mexico has been searching to enhance the coherence between system-wide policies as well as targeted programmes thanks to the new Strategy for Equity and Inclusion in the New Educational Model (*Estrategia para la Equidad y la Inclusion en la Educación*, 2017). The main programmes include:

- federal scholarship programmes for low income populations

- the conditional cash transfer programme PROSPERA, 2014
- an educational model adapted to marginalised areas' challenges, CONAFE's ABCD model, *Aprendizaje Basado en la Colaboración y el Diálogo-*, 2016).

With these policies, the country seeks to guarantee that schools provide all students with a school environment that is conducive to learning. In its context of great disparities between schools, a key issue is to make sure that the school infrastructure exists (i.e. the buildings), that it is safe and sanitary, and that schools have at least the basic means to function as educational institutions. The recent efforts made in this area are analysed in specific sections including:

- CEMABE (*Censo de Escuelas, Maestros y Alumnos de Educación Básica y Especial*, 2013)
- the Education Reform Programme of investment (*Programa de la Reforma Educativa*, PRE 2014-2018)
- the School at CIEN investment programme (*Escuelas al CIEN, Certificados de Infrastructura Educativa Nacional*, 2015-2018).

Offering universal access to an education of quality

Mexico has bound its State with the obligation to provide an education of quality, understood as an education that enables all its students to reach their full learning potential. Key abstracts from the Mexican legislation on equity in education are summarized in Box 2.1. Strengthening this statement of purpose, article 8 of the General Law of Education (*Ley General de la Educación*, LGE) defines the quality of education in terms of effectiveness, efficiency, relevance and equity, all of which the education system's objectives, results and processes must comply with. Equity has thus become a core component of the Mexican definition of quality in education, which means that progress in each education outcome should be assessed not only in terms of performance, but also through the lens of equity. Equity is considered in terms of access (all children should have an equal access to education), of resources and quality of educational processes (once in schools, all children should benefit from the means necessary for them to learn), and in terms of learning results (once in schools, all children should have the same opportunities to attain high standards of learning and complete their education).

Box 2.1. Delivering equity with quality in education: main abstracts from the Mexican law

Article 3, Constitution of Mexico

Article 3 of the Constitution of Mexico establishes that each individual has the right to receive education. The State is expected to provide an education of quality from pre-primary to upper secondary levels, with the goal to improve education constantly and to pursue the maximum academic achievement of students. The quality of education concretely refers to the materials and methods, the organisation of education, the infrastructure and the adequacy of education professionals that guarantee the maximum learning achievement of students.

Article 2, General Law of Education

All individuals have the right to receive an education of quality in equitable conditions, and to this extent, all countrymen and countrywomen have the same opportunities to access, evolve and remain in the national education system.

Article 3, General Law of Education

The State has the obligation to provide education services of quality that guarantee the maximum learning achievement of students so all the population can complete pre-primary, primary, lower and upper secondary education.

Article 8, General Law of Education

Education will be of quality, understood as the coherence between the objectives, the results and the processes of the education system, and in agreement with the dimensions of effectiveness, efficiency, relevance and equity.

Sources: Political Constitution of the United States of Mexico, accessed on 6 October 2018, available from http://www.diputados.gob.mx/LeyesBiblio/pdf/1_270818.pdf; and General Law of Education, accessed on 6 October 2018, available from https://www.sep.gob.mx/work/models/sep1/Resource/558c2c24-0b12-4676-ad90-8ab78086b184/ley_general_educacion.pdf.

In order to respond to its mandate, the Mexican education system must ensure that students are in schools where they can receive an education of quality. The first issue for the country is thus to make sure that students are enrolled in schools to get the education they need. Across OECD countries, on average 77.8% of the 3-year-olds are enrolled in either early childhood or pre-primary education, 100% of the 5-to-14 year-olds are enrolled, and 85% of 15-19 year-olds are enrolled in upper secondary education. In Mexico, these proportions have improved between 2010 and 2015, but remain below the OECD average, with enrolment for 3-year-olds moving from 44% in 2010 to almost 46% in 2015, and that of the 15-to-19 age group from 54% to 57% (OECD, 2017[7]).

First, early childhood education and care (ECEC) has been demonstrated to be effective to improve educational outcomes over the long run, as well as to be an efficient approach to prevent later drop out. ECEC usually encompasses both the programmes aimed to children aged 0 to 3 and the programmes for children aged 3 to the official primary school entrance age (OECD, 2017[18]). In Mexico, early childhood education and care refers only to initial education (*educación inicial*, ages 0 to 3), while pre-school or pre-primary school (*educación preescolar*, ages 3 to 5) is considered as part of basic education (*educación básica*). For comparative purposes, this report will use "ECEC" to

refer to all educational services for children aged 0 to 5 (thus including *educación inicial* and *preescolar*). Mexico has expanded access from ECEC to upper secondary education in recent years. Pre-primary education (*educación preescolar*), which was made mandatory in 2008-2009, begins at age 3 and lasts for 3 years. Enrolment rates have improved in pre-primary education to reach 47.5% of 3-year-olds enrolled in 2017, while remaining lower than the OECD average of 77.8% (data for 2017 provided by SEP to the OECD). Various education and care programmes exist nationally. Mexico also introduced a new pedagogical programme for education of the 0-3 year-olds in 2017 (*Programa de educación inicial: un buen comienzo*, Programme for initial education: a good start, 2017). which aims to help young children develop and slowly get ready for pre-school (SEP, 2017[19]).

To increase enrolment in upper secondary education, in 2012, compulsory education was extended to upper secondary education (*Educación Media Superior Obligatoria*, 2012). High dropout rates affect more disadvantaged students. For instance, in 2013, from 14.5% of the students between 15 and 17 years old who dropped out, 36.4% said they did so because they did not have the money to pay for materials or tuition (SEP, 2014[20]). Grade repetition also shows stark inequalities: as many as 26.7% of students in indigenous, and 27.5% in community schools repeat a grade, while they are only 4.1% in private schools (INEE, 2016[21]). Even after accounting for students' academic performance, behaviour and motivation, students from a disadvantaged socio-economic background are significantly more likely than more advantaged students to have repeated a grade in Mexico. This trend is similar in other Ibero-American countries such as Costa Rica, the Dominican Republic, Peru, Portugal, Spain and Uruguay (OECD, 2018[12]).

Mexico has developed a number of programmes to prevent dropout and incentivise students to remain in school. For instance, the Movement against School Dropout (*Movimiento Contra el Abandono Escolar*, 2013) focuses on information dissemination, participatory planning, and community outreach. It aims to encourage students to stay in upper secondary education and reduce the risk of social exclusion. The programme Constructing Yourself (*Construye T*, 2008), aims to complement the measures to reduce dropout and help students catch up by fostering the development of social and emotional skills in upper secondary public schools. It includes teacher training, support to prepare a diagnosis of strengths and weaknesses, a school project to respond to their challenges, and guidance for students.

Issues remain to guarantee that the students who need it the most are enrolled, stay and do well in schools. The correlation between students' socioeconomic background and enrollment is noticeable, especially at pre-school and secondary levels. Whereas the difference in enrolment to primary school between the poorest and the richest families is only 2.2 points, it rises to 26.4 points in pre-school. The difference is also of 15 points between the 12-to-14-year-olds in the poorest income decile and those in the top income decile (SEP, 2017[10]). Completion rates (*eficiencia terminal*) in lower secondary education have been increasing, up to 85.5% in 2017. The completion rate for upper secondary stood increased from 61.3% in 2012 to 66.7% in 2017 (data communicated by SEP to the OECD).

Providing resources for equity in education

Issues in equity are often linked to the way education resources are allocated in OECD countries. PISA 2015 data consistently show that learning environments in Ibero-America differ in several respects between the most advantaged and the most disadvantaged

schools, to the detriment of socio-economically disadvantaged students. To break the circle of disadvantage and underperformance, countries in the region can better align resources with needs, and ensure that measures to compensate schools for socioeconomic disadvantage effectively create opportunities for all (OECD, 2018[12]).

In Mexico, disadvantaged schools are proven to receive fewer resources than they need to provide an education of quality to their students (INEE, 2016[22]; Luschei and Chudgar, 2015[23]). Mexico (with Peru) had the largest socioeconomic gap in access to education materials in PISA 2015, compared to all participating countries and economies (OECD, 2016[2]). Students who attend advantaged schools are less exposed to shortages in educational material than the average student in OECD countries, while those in disadvantaged schools are more exposed to shortages than the average student in all PISA-participating countries and economies (OECD, 2018[12]). When looking at the role of system-level policies to enhance equity in education, it is therefore essential to understand how resources are allocated in education, and how much the allocation mechanisms can contribute to equity.

Federal spending on compulsory education (*Gasto Federal ejercido en Educación Obligatoria*, GFEO) makes up the most part of overall education spending (INEE, 2018[8]). It is allocated to the states through two main channels: the Federalized Spending Programmes (*Programas de Gasto Federalizado*, or *aportaciones*), which are earmarked to education; and budgetary participations (*participaciones*), which are transferred as part of the states' sovereign budget and can be used partly for education, depending on each state's decision. A third part of federal funds completes the overall budget for education through Federal Programmes (*Programas Federales*), which are directly administered by the central government.

Both the Federal and the Federalized Spending Programmes finance current as well as capital expenditures. In basic education, the Federal Programmes come mostly in the form of compensatory and pro-equity measures, subsidies and provision of various goods and services to schools. The Federalized Spending Programmes support daily operations of education services with 90% of them allocated to financing the payroll of educational staff (*servicios personales)* in basic education (INEE, 2018[8]). In upper secondary education, the federal government finances directly and entirely some schools (including the COLBACHs in Mexico City, and various baccalaureate and study centres). It also provides indirect funding through subsidies for federalized schools (including, for instance, CECYTE and TELEBACH), which fall under states' responsibility.

A major initiative taken in 2013 by the Mexican government regarding education funding was to better control the largest category of the Federalized Spending Programme which covers the states' payments for teachers and administrative personnel (*Fondo de Aportaciones para la Nómina Educativa y Gasto Operativo*, FONE). The states continue to determine who gets paid and what the payment is, but in compliance to general rules which are enforced centrally. The federal government makes the final personnel payments and funding such payments with the resources it provides the states through FONE. This does not, however, replace some mechanisms that would be necessary for schools to receive the public funds they need to attend to their learners' needs (Mancera Corcuera, 2015[24]).

As part of a larger initiative to strengthen the role of schools (the School at the centre or *La Escuela al Centro*), Mexico also innovated by allocating some budgets directly to schools, which the school community (school leaders, teachers along with parent and community representatives) decides how to allocate. The goal was to allocate these direct

budgets to some 75 000 schools by the end of 2018 (information provided by SEP to the OECD team).

From the schools' perspective, federal and state funds blend in with other financial resources to make up the year's budget which is then mainly composed of:

- payment to teachers and administrative personnel administered centrally through the FONE[2]
- funds granted within the scope of targeted programmes (either federal or state specific), including for occasional investments in facilities and equipment, which school leaders must apply for to be considered for additional funding
- parental contributions and money raised by the school and parents' associations.

It is the responsibility of the school leader and parent representatives to ensure that the funds are kept and managed in a bank account opened to this effect. This school governing body prepares a provisional budget for each financial year and presents it at an annual meeting with parents for consideration and approval (OECD, 2010[25]; INEE, 2015[26]).

Balancing standards and introduce flexibility to guarantee quality for all

Mexico initiated some significant changes in both the standard requirements for basic school operations and in their flexibility, to allow schools to adapt their offer to their students' needs while ensuring a basic education service of guaranteed quality.

In general, there are some basic conditions that schools must fulfil to facilitate learning improvement, such as being open a certain number of days per year, or having teachers in front of the classes. A previous OECD review showed that these basic conditions were not met by all schools in Mexico (OECD, 2010[25]). In 2013, SEP drew 8 Minimum Standards for School Operation (*Normalidad Mínima de Operación Escolar*) to raise and ensure quality in all schools. These standards aim to guide school leaders, supervisors and their teachers, gathered in their School Technical Council (*Consejo Técnico Escolar*), in measuring whether their school meets the minimum standards to be able to provide quality education, as determined as following:

1. All schools must provide education services on each day scheduled as a school day in the calendar. For this to be possible, the state education authorities (*Autoridades Educativas Locales*, AEL) must make sure that schools are fully staffed throughout the year;
2. All class groups must have teachers on each school day, which requires AELs to guarantee that teachers on leave get replaced quickly and adequately;
3. All teachers must start class on time;
4. All students must be on time at all classes;
5. All the educational materials must be at the students' disposal and must be used systematically;
6. All the school time must be used for learning activities principally;
7. The learning activities proposed by the teachers must engage the students with the class' work

8. All students strengthen their learning in reading, writing and maths, according to their grade and own learning pace (SEGOB, 2014[27]).

Mexico has also made it possible for some schools to adapt their instructional time. A flagship example is the Full-day schooling programme (*Escuelas de Tiempo Completo*).

Mexico has reduced its instructional time from 200 compulsory school days per year, to 195 days (except some schools have the option to reduce it to 185). This puts the country closer to the OECD average of 185 days per year (OECD, 2016[28]). The context however can vary across its 136 195 primary and lower secondary schools (SEP estimate for the year 2017-2018). For instance, schooling modalities vary according to features such as the time of the day when students attend class. In 2013, the CEMABE showed that the majority of students went to school for about 4.5 hours in primary schools, either in the morning (*matutino*) or in the afternoon (*vespertino*), while students in lower secondary had about 7 hours of classes daily (information provided by SEP to the OECD). Only 2.1% of all public, private and special education schools offered full-day schooling (INEGI/SEP, 2014[29]). Studies and reports from on-site interviews lead to believe that learning quality and opportunities are better for students attending the morning classes than afternoon classes (Cárdenas Denham, 2011[30]). Between 2007 and 2013, the number of full-day schools grew steadily from 500 to 6 708, benefitting a total of 1.3 million students (SEP, 2017[31]).

In 2013, the objective for all students to eventually be able to attend full-day schools was introduced (OECD, 2018[32]). The Constitutional and legislative reforms, established the obligation of the Mexican State to expand the number of full-day schools, offering a full lunch to all students in most disadvantaged areas. The Full-day Schooling programme (*Escuelas de Tiempo Completo*, ETC) appeared as a crucial tool to help more schools shift to full school days, some with support to offer lunch programmes. The idea behind ETC is to enhance learning opportunities by extending the school days to 6 or 8 hours, thus allocating more hours to academic support for students, expanding the curriculum with an intercultural focus, better usage of the schools' facilities by students –such as the library – and freeing up some time for teachers and their school leaders to work together on pedagogical and other school priorities (SEP, 2017[31]). To this end, ETC disposed of a budget of 2 509 million pesos for the year 2012. The budget served to fund training courses for school staff; pay for pedagogical material and equipment; finance on-site lunches for students and staff; and provide general support, advice and monitoring to the schools (CONEVAL, 2013[33]).

Reinforcing coherence among targeted equity programmes

Following the extended right of all Mexicans to an education of quality, and as part of a New Educational Model (*Nuevo Modelo Educativo*, NME) introduced in 2017, a "Strategy for Equity and Inclusion in Education" (*Estrategia para la Equidad y la Inclusion en la Educación*, 2017) was introduced. It aims to build a coherent approach to delivering quality with equity in Mexico. Box 2.2 below summarises how the different initiatives come together in the NME.

Box 2.2. The strategy for equity and inclusion in the New Educational Model

The New Educational Model (*Nuevo Modelo Educativo*, NME) comprises several lines of action to make inclusion a reality in education, including:

Intergenerational education mobility: strengthening early childhood and initial education; enhancing access to educational opportunities for disadvantaged groups and widening these opportunities; retaining students in the school system and reducing dropout;

Quality of the learning content: Orientate the study plans and programmes (*Planes y Programas de Estudio*, PyPE) to spread an inclusive perspective across learning; design and implement a linguistic educational plan for diversity (*Plan lingüístico educativo para la atención de la diversidad*) to help educational staff face the specific challenges of diversity-rich learning environments;

Quality of the learning environment: extending school days; implementing minimum standards for school operations; enable teachers to adapt learning contents and methods to enhance student outcomes in indigenous and migrant schools, in schools with multiple-grade classrooms, or in tele-secondary education (*telesecundarias*); and provide adequate integral training and professional development to the teachers to develop inclusive learning environments in a context of diversity; widen academic support to public schools and other services that attend to indigenous and migrants populations, for instance by increasing the scale of the Programme for Inclusion and Equity in Education (*Programa de Inclusión y Equidad Educativa*, PIEE).

Source: OECD elaboration based on SEP (2017[10]), *Equidad e inclusión*, Secretaría de Educación Pública, Mexico City.

A comprehensive description of the initiatives and how the Strategy complements and strengthens them can be found in *Equidad e inclusion* (SEP, 2017[10]).

A common approach to enhance equity is to incentivize schooling via scholarships for the more disadvantaged. Federal scholarship programmes aim to decrease families' opportunity costs to keep their children in school. A well-known example is the PROSPERA programme, headed by Mexico's Secretariat for Social Development (SEDESOL), which benefits from significant funding from SEP. The conditional cash transfer programme targets families living in poverty and focuses on health, nutrition and education. The cash transfers aim to encourage parents to keep their children in school for longer, as the money reduces the opportunity cost of staying in school rather than working. PROSPERA has maintained the main components of Opportunities (*Oportunidades*), its predecessor, while also expanding its scope. For instance, PROSPERA gives greater emphasis to early childhood development and co-ordinates scholarship programmes for student in upper secondary and higher education, alongside other education institutions. The federal state also spearheads the National Scholarship Programme (*Programa Nacional de Becas*, PNB), which acts as an umbrella for smaller-scale scholarship programmes in primary, secondary and higher education (OECD, 2018[32]).

Parts of the federal support funds and programmes are specifically dedicated to the most marginalised schools in the country. For instance, SEP's General Direction of Indigenous Education (*Dirección General de Educación Indígena*, DGEI) collaborates with state education authorities to promote academic success in rural and indigenous schools (more

than 21 000 according to SEP estimates). These schools cater to a large number of indigenous and migrant students (1.2 million students according to SEP estimates) thus providing environments where cultural diversity is extremely rich and teaching and learning can be challenging. The DGEI and state authorities take various actions to enable these students to access an education of quality that respects the diversity of their communities. Among other initiatives (SEP, 2018[34]):

- Authorities promote the elaboration and distribution of educational materials in indigenous languages.
- The DGEI and state authorities help professionalizing teachers of indigenous languages and in culturally diverse context (almost 60 000 teachers), including by creating professional standards and offering specific continuous professional development.
- The National Commission for the Development of Indigenous Peoples (*Comisión Nacional para el Desarrollo de los Pueblos Indígenas*, CDI) supports indigenous children so they can stay within the education system, providing food and shelter to children who have to travel away from home to go to school (*casa del niño indígena*, indigenous child´s home) and offering lunches.
- The National Council for Education Development (*Consejo Nacional de Fomento Educativo*, CONAFE) –a public agency linked with the Secretariat for Education- designs, implements, operates and evaluates educational programmes to guarantee that children and young people receive an education of quality even in the most remote areas. The Council guarantees education in community schools, for instance (SEP, 2017[10]). The CONAFE's mandate was strengthened as part of the Strategy for Equity and Inclusion in Education, to enhance governmental support to students in remote and marginalised areas. The modifications include a stronger coordination with PROSPERA's actions as well as the improvement of CONAFE's educational model for basic education.

Strengthening conducive learning environments for all

Schools' infrastructure and equipment determine the baseline conditions in which learning develops (OECD, 2014[35]). Studies of the impact of physical environments on student learning are scarce, but even if the precise impact on learning is unclear, students have the right to go to schools where the basic sanitary and safety conditions are met (including safe constructions, electricity, water supply, and ventilation). In the case of Mexico, where many schools are in dire conditions, ensuring they all dispose at least of some minimum facilities such as safe buildings, restrooms and electricity is thus crucial to improve learning opportunities for all students.

The existing empirical literature finds that school facilities and more generally, the physical learning environment affect educational quality at least through its interaction with other factors (Cheng, English and Filardo, 2011[36]). Studies by INIFED show that infrastructure influences learning outcomes in Mexico (ASF, 2018[37]). Such studies on Latin American countries observe various effects of school facilities and physical investment on learning and academic results. Enhancing the physical environment is more likely to improve learning in areas where the quality of school facilities is low. The most significant physical factors explaining countries' results on SERCE (the UNESCO's Second Regional Comparative and Explanatory Study on education policy in Latin America and the Caribbean) tests were: the presence of pedagogical spaces such as a

library or a computer room, whether the schools were connected to public electricity and telephone networks, and whether fresh water and bathrooms were available (Duarte, Jaureguiberry and Racimo, 2017[38]).

In an education system the size of Mexico's, ensuring that more than 225 757 schools in basic education (estimation by SEP for primary and lower secondary education for the academic year 2016-2017) are equipped with the basics is a challenge in itself. In 2014, 9 federal entities had at least 100 schools without physical construction at all or were made with precarious materials. Among the physical public schools, 31% had no access to the public water distribution system, 11.2% had no electricity and 12.8%, no sanitary facility, while 31.1% and 26.5% had access to internet and to a landline, respectively.

Basic infrastructure creates large discrepancies between schools and between states. For instance, close to 100% of private schools had access to electricity, and 92% had an internet connection, compared to 88.8% and 31.1% of public schools, respectively. Inequalities are also to be found between states, for example in terms of water distribution: 41.7% of schools overall did not have access to the public water distribution system in the state of Guerrero, while it was true for only 3.5% schools in the Mexico City (INEGI/SEP, 2014[29]). Although a good teacher and motivated students probably do not need fancy installations to succeed, a basic minimum may be necessary to facilitate learning conditions, whether in terms of safety, health, or pedagogical equipment.

In Mexico in general, disadvantaged schools have access to fewer resources than what they need (INEE, 2016[22]): principals of disadvantaged schools report receiving fewer educational material and staff than advantaged schools. Mexico is among the PISA countries for which this difference is the largest (OECD, 2016[2]). The education services available in disadvantaged areas are often precarious. The Survey of Schools, Teachers and Students in Basic and Special Education (*Censo de Escuelas, Maestros y Alumnos de Educación Básica y Especial,* CEMABE) carried out in 2013 shows for instance that 42.7% of primary and 37.1% of lower secondary community schools were not made of proper construction material, as was the case for 18.1% of indigenous primary schools (SEP, 2017[10]).

To tackle the quality of school infrastructure in Mexico, which has been an issue for years, Mexico has undertaken a range of measures. School infrastructure quality, mainly measured in terms of safety, functionality, inclusiveness and adequateness (LGE Article 7) refers to "decent and functional spaces that incorporate new technologies to facilitate and inspire pedagogy, which requires not only to have the necessary physical infrastructure but also to keep it up-to-date" (SEGOB, 2014[39]). By law, the state must therefore provide school environments with safe buildings, provide basic services such as hydro-sanitary systems and electricity, and incorporate the technologies necessary for schools to prepare all students for the 21st century.

The National Institute for Physical Educational Infrastructure is the main institution in charge of ensuring quality in school infrastructure in Mexico (*Instituto Nacional de la Infraestructura Física Educativa*, INIFED). INIFED establishes the law and certifies the quality of school infrastructure; it gives advice to schools on how best to prevent or deal with existing damages; and it keeps an information system on the state of physical school infrastructure up to date. Each of the 32 entities has its own institution in charge of building, equipping, rehabilitating and maintaining the school infrastructure, except for the City of Mexico where INIFED fulfils these responsibilities directly (*Ley General de la Infraestructura Física Educativa,* Article 19, 2014).

To update basic information on the student and teacher populations, and on the school infrastructure SEP and the National Institute for Statistics and Geography (*Instituto Nacional de Estadística y Geografía*, INEGI) administered a large census (*Censo de Escuelas, Maestros, y Alumnos de Educación Básica y Especial*, CEMABE, 2013). Following the findings about the state of school infrastructure, INIFED undertook a large-scale diagnosis of schools' infrastructure needs in 2015. It found that of the 146 392 primary and lower secondary schools surveyed, 98.9% needed some investment to enhance their structure's safety and general functioning, 98.5% needed funding for sanitary services, 96.4% were in need of furniture and equipment (ASF, 2018[37]). Based on the information gathered in the CEMABE and INIFED surveys, two new programmes were engineered to complement and replace previous measures to enhance school infrastructure: the Education Reform Programme (*Programa de la Reforma Educativa*, PRE) and the programme *Escuelas al CIEN* (ECIEN).

CONAFE and the state of Campeche have further been running some pilot projects to give students the opportunity to attend schools with complete staff and better infrastructure, and to interact with children from different contexts. These projects target mostly multigrade schools (mainly CONAFE´s schools or one-teacher school), in which one teacher is in charge of all students, all grades included, and where the infrastructure is often of poor quality.

In summary, Mexico's education system displays large disparities in schools' learning environment. This issue was understandably pinpointed as a priority for education authorities to handle. The latter efficiently harnessed promising initiatives from previous administrations, which they enriched with new programmes and resources to scale up investment to make school environment more conducive to learning.

Overall, Mexico has focused on equity as a key policy issue at both a general and more targeted level, with a range of policies and programmes to reduce inequalities and to respond to the needs of all its all learners. It is important to review how these policies are adopted and contributing to equity.

Assessment

Mexico has succeeded in developing its educational policies at a remarkable pace and a large scale. The capacity of the public education system to evaluate its own needs for enhancement and act on them is commendable, as are its actors' willingness to undertake assessments by both national and international actors. The latter is proof of Mexico's readiness to take action to enhance its education system, which is a considerable achievement in itself given the intrinsic difficulty of reforming in education. Introducing the right to an education of quality in the Constitution sets Mexico among the ambitious education systems that strive to achieve both excellence and equity for their students. To make this right a reality for all students, Mexico has been progressively shifting toward a more coherent approach to equity, using both system-wide education policies and targeted equity programmes.

System-level measures: extending opportunities for learning to all

Improving enrolment in ECEC and upper secondary education

Mexico's overall education level has significantly improved over the past four decades. For over ten years, Mexico has guaranteed that more than 95% of its youth between the

ages of 5 and 14 get access to education. Mexico has expanded access from ECEC to upper secondary education in recent years. Overall enrolment rates by age 4 have been rising, from 87.3% in 2012 to 91.5% in 2017, beyond the OECD average (compiled annual education statistics provided by SEP for the 2012-2018 period). The enrolment of 3-year-olds in pre-primary education (*educación preescolar*) has nearly doubled since 2005, but 47.5% were enrolled in 2017, lower than the OECD average of 77.8%. Nevertheless, the participation of children in ECEC varies widely among regions. According to national data, in 2016-17 net enrolment for children aged 3 to 5 ranged from 94.9% in Tabasco to 59.5% in Quintana Roo (SEP, 2017[40]).

Mexico has also faced a significant challenge of improving the quality of ECEC. According to PISA 2015 results, the average gap in science scores between students who attended at least more than one year of pre-primary school and those who had attended one year or less was 41 points. This identified difference in performance provides some evidence on how important ECEC can be for the academic success of students (although this may be more difficult to take into account for education systems where children have more recently migrated into the system). In Mexico however, having attended ECEC does not yet have an effect on students' results: after accounting for socio-economic differences, 15-year-old students who had benefitted with at least 2 years of pre-primary education during their childhood scored no higher than their peers who did not receive pre-primary education (OECD, 2017[18]). Early Childhood Education and Care is one of the areas where there is the greatest social disparity in Mexico. First, disadvantaged populations are less likely to send their children to pre-primary education; and second, pre-primary education still receives a small portion of education spending. In order to improve the quality of learning from early childhood education, Mexico has intended to align the guidelines used in initial education and the new curriculum (2017). The pedagogical programme for education of the 0-3 year-olds (*Programa de educación inicial: un buen comienzo*, Programme for initial education: a good start, 2017) thus aims to help young children develop and slowly get ready for pre-school, in respect of their own right to an education of quality (SEP, 2013[41]).

Enrolment for the 15-to-19 year-olds has been more challenging, but is improving thanks to a number of initiatives. In 2012 Mexico made upper secondary education (*educación media superior*, EMS) compulsory until 17 for all young Mexicans, with the goal to attain universal coverage at that level by 2022. This was accompanied by a number of programmes directed to the students most at risk of dropping out.

Activities in the Movement against School Dropout (*Movimiento Contra el Abandono Escolar*, 2013) include the physical and digital distribution of handbooks, and yearly workshops in schools on dropout prevention for teachers and school leaders. In 2014-2015, 70 training sessions were held in which 12 000 teachers and school leaders took part (numbers provided by SEP, July 2018). Some evidence suggests that the policy has had a significant impact in reducing dropout, estimated at 952 769 students by SEP (idem). It is recommended to continue monitoring to ensure the efficacy of the programme, however (OECD, 2018[32]). SEP and state education authorities also established in 2013 that schools should have among their improvement priorities (*ruta de mejora*) to identify low performers, give them special support and prevent them from dropping out. From 2016 to 2018, 81,000 schools installed an early alert system (*Sistema de Alerta Temprana*, SisAT) to systematize this goal (data communicated by SEP based on reports by state education authorities).

The programme Constructing Yourself (*Construye T*, 2008) has been implemented in almost 33% of schools by SEP, assisted by the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and another 39 non-governmental organisations. Over 20 000 teachers and principals have received capacity-building training since 2013 (OECD, 2018[32]). The National Programme of School Coexistence (*Programa Nacional de Convivencia Escolar*) started in 2016 with similar objectives to develop socio-emotional skills and prevent bullying and discrimination.

Up until 2013, about half of the 15-to-19 year olds were not enrolled in school: the enrollment rate reached a peak at 56% in 2011, then lost 3 points the following year before rising up to 57.3% in 2015. Although it is not unusual for enrolment rates to vary, their level still remained low compared with the OECD average of 84.2% (OECD, 2017[7]). Yet the initiatives in 2012-2013 were indeed followed by a substantial raise in the enrolment rates for the 15-to-17 age group, which corresponds to the people whose age makes it compulsory for them to attend school since the new age limits for compulsory education. This rate went from 65.9% in 2013 to an estimated 76.6% in 2017 (compiled annual education statistics provided by SEP for the 2012-2018 period).

The graduation rates for upper secondary education have remained on the lower side, at 56% in 2015, compared to an OECD average of 86% (OECD, 2017[7]) . This could be explained partly because of the dropout rate remaining high: 15% of the students enrolled in 2015 did not enroll again in upper secondary education (*Educación Media Superior*, EMS) in 2016 (INEE, 2018[8]). Increasing spending in education

Exploring equitable funding solutions for education

Expenditure on education in Mexico represents a higher share of the country's GDP, at 5.4% in 2014 than the OECD average of 5.2% (OECD, 2018[32]). Expenditures have been increasing in compulsory education, especially since 2013, which coincides with the inclusion of upper secondary education in compulsory education (INEE, 2018[8]). These expenditures however, remain low when looking at expenditure per student: in 2014, Mexico spent USD 2 896 annually and per student at primary level, below the OECD average of USD 8 733 (values in purchasing power parity). Similarly, the annual per-student spending at secondary level was USD 3 219, below the OECD averages of USD 10 106 (OECD, 2018[32]).

States design their own approach to distribute resources across individual schools (INEE, 2018[8]). Little information is available on how such distribution takes place but part of it seems to be on a historical basis (adjusting previous amounts for inflation) (Santiago et al., 2012[42]). According to observers, monitoring of effective use of federal funds is indeed dependent upon state education authorities' capacity to gather, verify and report detailed information, which might turn out to be difficult for some of them (Mexicanos Primero, 2018[43]).

Exchanges with stakeholders in Mexico show that the level of resources schools actually receive from the government is low and unequal. To receive funds from targeted programmes, schools depend on bureaucratic procedures that capture a lot of school leaders' time, away from pedagogical issues. They thus depend on parental contributions and other fund raisers to cover their operational expenses. For instance, a study by the INEE in 2010 reported that parental contributions was the main source of funding for preschools, contributing over 56% to infrastructure, equipment and furniture (Pérez Martínez, Maria Guadalupe Pedroza Zúñiga, Ruiz Cuéllar and López García, 2010[44]).

There are two main ways of operationalising equity in education: horizontally and vertically. Horizontal equity is usually defined as the equal treatment of equals: horizontally equitable funding schemes are set such that there is a minimal dispersion in the access to resources within a given subpopulation of students or groups of schools. Vertical equity is typically defined as the unequal treatment of unequals. Vertically equitable funding schemes focus on providing differential funding for different student groups, reflecting the additional cost of providing similar educational experiences across students with different characteristics (OECD, 2017[45]).

In Mexico, the main mechanisms for education funding do not take into account the differences in schools' needs and the different costs attached to those, which means that schools in disadvantaged contexts usually have less financial resources and require extra funding through programmes to operate (Cortés Macias, 2015[46]). Insufficient funding can only perpetuate inequalities, given that disadvantaged schools usually have infrastructure and equipment of relatively poorer quality (INEE, 2016[22]) and teachers who tend to be less trained, less experienced and less incentivised to stay for several years (Luschei and Chudgar, 2015[23]). Discussions have been ongoing between experts and political representatives about alternative funding formulas to distribute federal funds in a more equitable way. However, the distribution still fails to take into account key equity indicators, which limits the possibilities for regular funding mechanisms to contribute to equity (Cortés Macias, 2015[46]). Some experts have been advocating for a change in the education funding formula to make it more equitable (Caso Raphael, García Martínez and Decuir Viruez, 2016[47]). Schools attending poor communities therefore tend to continue the cycle of disadvantage. Subsequently, attention should be paid to how education resources in general –not only financial– are allocated, and which impact this has on equity.

Allocating resources equitably means that the schools attended by socio-economically disadvantaged students are at least as well-equipped as the schools attended by more privileged students, to compensate for inequalities in the home environment (OECD, 2016[2]). There are two broad approaches when designing mechanisms to allocate funding according to different needs across schools. First, including additional funding in the main allocation mechanisms for schools (e.g. including weights in the funding formula to allocate additional resources according to certain categories). The second one consists in providing targeted funding through grants external to the main allocation mechanism. Research in educational economics has provided evidence supporting well-designed and transparent funding formulas as the best way to combine horizontal and vertical equity, while incentivizing the efficient use of school resources at the different levels of the system. In other words, funding formulas promote horizontal equity by ensuring that similar funding levels are allocated to similar types of educational provision. Formulas enhance vertical equity by adding different amounts to the basic fund allocation according to the degree of needs of schools (OECD, 2017[45]). Countries such as Chile have developed effective school funding formulas, as detailed in Box 2.3.

Box 2.3. Chile's formula-driven school grants

In **Chile**, the main mechanism of public financing is in the form of school grants from the state to school providers (municipalities, for instance), who directly manage the funds. The basic school grant (*Subvención de Escolaridad*) results from multiplying a basic amount updated yearly by the monthly average student attendance and an adjustment factor by level and type of education. The basic grant is complemented by a range of more specific allowances and grants to acknowledge that the cost of providing quality education varies depending on the characteristics and needs of students and schools. For instance, the Preferential School Subsidy aims to level the differential cost incurred by schools tending to vulnerable students. Complementary financial transfers include allowances directly given to education staff

Chile's system of formula-driven school grants provides a transparent and predictable basis for school providers. Unlike many other countries around the world, school financing is based on objective criteria (number of students being the most important one, but with adjustments for other factors affecting schools' per-student costs) and not the result of negotiations between the government and public and private school providers. The existence of a clearly defined and objectively measured formula as the basis for allocating resource imposes a hard budget constraint to providers and creates the conditions for basic spending discipline, an important feature in a system with many school providers. The formula also accommodates the needs of a diverse network of service providers. Finally, resource allocation is not inertial and responds to new policy priorities: when a new policy requires additional resources, the budget changes accordingly.

Source: OECD (2017[48]) "Funding of School education in Chile", in *OECD Reviews of School Resources: Chile 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264285637-6-en.

Standardising basic operational conditions to improve schools' capacity

The eight basic standards for school operations are not only for education authorities to put into law; they are meant to serve as guidelines for school communities to assess the quality of their own school against these references. As such, a first indicator of whether the standards could become a reality at school level is whether the school community and especially, its School Technical Council (*Consejo Técnico Escolar*, CTE), know about it.

The CTE consists in a collegial body composed of the school leader and the entire professorship in schools with at least four of five teachers (OECD, 2010[25]). It is in charge of planning and implementing common decisions necessary for the school to fulfil its mission. Especially, the CTE discusses the school's needs in terms of pedagogy, and plans the Improvement Route (*Ruta de Mejora*) focusing on four priorities: key learnings, minimum standards for school operations, living together (*convivencia escolar*) and preventing dropout (SEP, 2017[49]; SEP, 2017[10]).

In order to help CTEs use the standards, SEP has been publishing a series of handbooks for CTE management, with guidelines about how to analyse a school's conformity to the minimum standards (SEP, 2017[50]). SEP has been monitoring 1 200 CTEs during the school year 2017-2018, which shows that most schools have regular CTE meetings where the Council checks on school indicators, analyses them and uses the analysis as input to elaborate its Improvement Route (*Ruta de mejora*) and to make decisions. The study also

shows that it is necessary to improve CTEs' capacity to set goals and monitor them, and to take strategic decisions (information provided by SEP to the OECD team). These results are coherent with publicly available reports on the evaluation of the Education Reform Programme in each state, and the school communities our team has met during its visit. Evaluation reports on all the components of the Education Reform Programme (*Programa de la Reforma Educativa*) published for transparency purposes are available on the Programme's online platform, for the years 2014-2015 and 2015-2016 (SHCP, 2018[51]). Whether schools consistently meet the minimum standards for school operations, remains to be assessed, however.

Promoting full-day schooling for inclusive education

The issue of instructional time is complex, with many factors determining the quantity and the quality of the education it provides. Research on the effect of instructional time on student learning is scarce, although it is crucial for governments to make informed decisions about whether to invest in longer school days. Instruction time in formal classroom settings accounts indeed for a large portion of public investment in student learning (OECD, 2011[52]).

Large-scale studies find no strong relationship between instructional time in general, and student performance on test scores (Van Damme, 2014[53]; Hattie, 2015[54]; Long, 2014[55]). At a smaller scale, studies tend to find that an increase in instructional time can lead to better student performance on tests, although the effects seem to vary according to the country's context, the type of school and to individual student characteristics (Cattaneo, Oggenfuss and Wolter, 2016[56]; Hincapie, 2016[57]; Anderson and Walker, 2015[58]). The effect of lengthening the school day on equity is also unclear (Orkin, 2013[59]). Few studies focus on the effects of going specifically from half-day to full-day schooling, but the existing point to beneficial results. The literature that looks at similar policies for pre-school levels finds better academic and socio-emotional outcomes for children who attended full school days compared to those who went to half-day kindergartens (Carnes and Albrecht, 2007[60]; Gullo, 2006[61]).

The amount of time spent in school is, in fact, less important than how the available time is spent and on which area of study, on the quality of the teachers, on how motivated students are to achieve, and how strong the curriculum is. OECD countries set the amount and distribution of instruction time in very different ways, although recent trends show a reinforcement of core subjects. PISA reveals an increase in classroom instruction time in core subjects between 2003 and 2012, and a reduction in the time students spend doing homework outside the classroom: 15-year-olds spent an average of 13 more minutes per week in mathematics class in 2012, while they reported spending 1 hour less on homework than in 2003 (OECD, 2016[28]). Research insists on the impact that teachers have on student achievement through the type of assessments they use and feedback they give, the level of expectations they set for their students, and the general quality of teaching (Hattie, 2009[62]).

As shown in international evidence, the relationship between learning time or teaching hours, and learning performance is unclear for high performing countries (Haahr et al., 2005[63]). Although Mexico is already among OECD the countries with the longest instructional time, there can be equity issues between the morning, afternoon, and evening schools (Cárdenas Denham, 2011[30]). By turning some dual shift schools (*escuelas de doble turno*) into full-day schools, Mexico could enhance both quality and equity of its service provided the extra learning hours are used to teach high-quality

content. Mexico succeeded in multiplying the number of full-day schools by almost 4, to reach an estimated 25 032 schools and benefit 3.6 million students in 2017 (SEP, 2017[31]). Out of the beneficiary schools, 60% were rural or indigenous schools.

A World Bank study on the impact of ten years (2007-2016) of the Full-day schooling programme (PETC) finds that the full days contributed to improving student learning – increasing the number of high-performing students and decreasing the number of low-performers, and to reducing the number of students who significantly lagged behind in primary school. Interestingly from an equity point of view, these positive effects were stronger for students in vulnerable schools. More specifically, results in disadvantaged schools show major decreases in the share of students who scored at the lowest level in mathematics and language (The World Bank, 2018[64]).

Mexico has been leading some system-wide policies which aim to contribute to inclusion in education. Increasing enrolment rates, raising resources allocated to education, and adjusting schools' obligations and possibilities to operate are as many measures that can enable all schools to guarantee basic standards of quality, and to make sure students are in schools to benefit from them. Especially, the goal to reach universal coverage between pre-primary and upper secondary education should keep being pursued. However, the effectiveness and adequacy of other initiatives should be studied while taking into account the actual capacity to implement at the local and school levels.

Targeted approaches: extending support to the most disadvantaged

Support has considerably grown to the most disadvantaged students and schools between 2013 and 2017. According to SEP estimates the number of indigenous schools who received support from federal programmes increased by 274% between the year 2012-2013 and 2016-2017 (SEP, 2017[31]). This represents close to half of the total number of indigenous schools estimated in early childhood and primary education year (N.B, the total of indigenous early childhood and primary schools was estimated at about 20 000 (compiled annual education statistics provided by SEP, 2012-2018).

As part of its actions to enhance education in the most marginalised schools, the CONAFE (*Consejo Nacional de Fomento Educativo*) developed its own educational model for initial and basic education, and adapted it to the new curriculum of 2017. The ABCD model (*Aprendizaje Basado en la Colaboración y el Diálogo*) aims to adapt to the challenges faced by communities in remote or deprived areas. Its objective remains to get children up to speed with the basic learning they need to join the "regular" system –i.e. federal or state schools that use the regular curriculum. The "CONAFE system" is based on the use of 37 000 "young educational leaders" who teach for at least one year and receive two years' worth of financial support for their own education. In 2018, the "CONAFE system" provided education to an estimated 665 000 students in basic education (data communicated to the OECD team during its visit in June 2018).

Through its Programme of Support to Indigenous Education (*Programa de Apoyo a la Educación Indígena*, PAEI), the CDI (*Comisión Nacional para el Desarrollo de los Pueblos Indígenas*) provided food and/or shelter to more than 60 000 children through the Indigenous Child's Homes and Canteens (*Casas y Comedores del Niño Indígena*). The Community Homes and Canteens for the Indigenous Child allowed for providing food and hygiene services to almost 16 000 children and youth (SEP, 2018[34]).

The Mexican State's scholarship and financial support programmes are also key in reducing inequalities between students. Overall, federal programmes provided various

types of scholarships to around 7 million students in compulsory education in 2016-2017 (SEP, 2017[31]). The vast majority of these scholarships were financed through PROSPERA's programme for basic education (*PROSPERA Programa de Inclusión Social*) (SEP, 2017[31]). For the school year 2017-2018, SEP distributed through PROSPERA close to $ 18 120 million pesos in scholarships for basic education, and almost $ 13 000 million pesos in upper secondary education (data communicated by SEP directly to the OECD team). The PROSPERA programme has helped increase enrolment rates in secondary education, diminish the incidence of anaemia among children, and reduce poverty rates in rural areas. PROSPERA remains a model of success for other cash transfer programmes worldwide (OECD, 2018[32]).

The Strategy for Equity and Inclusion in Education (2017) tries to build coherence around the diverse programmes which Mexico has been carrying out to cope with inequalities of all sorts. Because the strategy is very recent, there has not been time to assess whether this coherence has been translated into changes in the operations of the various programmes. However, some earlier attempts by Mexico to make its approach to equity more coherent have been studied, including for instance the Programme for Inclusion and Equity in Education (*Programa para la Inclusión y la Equidad Educativa*, PIEE).

In an attempt to simplify the funding mechanisms for equity programmes, the PIEE started operating in 2014 as a result from the merge of seven previously existing budget programmes (N.I.K. Beta S.C., 2017[65]). The PIEE aims to strengthen the capacities of schools and educational services that serve indigenous children, migrants, and students with special educational needs. The PIEE is active in basic, upper secondary and higher education and counts 5 components:

- actions in indigenous schools
- actions in education centers for migrants
- special education services for students with disabilities and outstanding abilities
- special centres for students with disabilities (*Centros de Atención a Estudiantes con Discapacidad*, CAED) at upper secondary level
- support for higher education institutions to promote equity and inclusion.

For each of the above, the PIEE provides financial and academic support, as well as funding for infrastructure improvement of disadvantaged schools. In 2017, 65% of the resources at its disposition were meant for actions in favour of the indigenous and migrant populations. This benefitted 5 445 indigenous and migrant schools that same year, or around 27% of the total number of indigenous schools estimated for that year ((SEP, 2017[31])and compiled annual education statistics provided by SEP, 2012-2018).

An independent evaluation of the programme's design, process and results was carried out for the CONEVAL (N.I.K. Beta S.C., 2017[65]). It emphasizes the relevance of the PIEE, in that it responds to a well-defined need, and acknowledges the fact that it met its targets although the latter were considered low given the programme's budget. It should be noted that the Programme catered to no fewer than 176 000 students in 2016 only (OECD, 2018[32]). The report raised attention on the need for a deeper analysis of the programme's design, however. Given its scope, the programme is supposed to cover the needs of a very large population, which requires separate lines of actions and separate entities to drive and run the programme (responsibilities are still shared across the three Undersecretaries of Basic, Upper Secondary, and Higher Education). Therefore the report

suggests re-evaluating the programme's design to align it better with its operational requirements (N.I.K. Beta S.C., 2017[65]).

Although Mexico has been fighting against inequalities for a long time, the new constitutional mandate to provide quality with equity in education raises the challenge one step higher. The need for more equitable provision mechanisms increases as the requirement levels in terms of quality rise. Some targeted programmes such as PROSPERA and CONAFE keep being very relevant and effective. However, the programme-based approach to equity does not suffice to guarantee education of quality to all students. Mexico has been building coherence in its approach, embedding its programmes into a broader strategy for equity and inclusion. More efforts could be made in this direction, to make sure that equity translates into effective improvements in all students' learning.

Safer and more adequate learning environments

Enhancing the physical infrastructure of schools requires some referential that defines what quality and safety mean. Such referential was defined between 2013 and 2015, and guided INIFED's assessments of the educational infrastructure since then (SEGOB, 2013[66]; SEGOB, 2015[67]). These criteria include for instance whether the schools are ventilated, whether they dispose of their waste in a safe manner, whether they have green spaces, as well as if the building is in good shape or ancient or damaged (SEGOB, 2013[66]). Based on these criteria, INIFED classifies schools' infrastructure in one of three categories: minimal (*esencial*), functional or sustainable. Between 2013 and 2018, more than 11 000 schools were certified by INIFED because they complied with at least 3 of the criteria for infrastructure safety and quality. Certifications were granted either through its National Certification Programme (*Programa Nacional de Certificación*, 124 schools), or through *Escuelas Dignas* (4 482 schools) or *Escuelas al CIEN* (6 775 schools) (INIFED, 2018[68]).

A major achievement on the road to providing a better education for all was the historical amount invested in school infrastructure between 2013 and 2018. This investment was dedicated to enhance the quality and safety of the 152 469 school sites referenced in 2013, with a priority given to the schools that were most in need. In total over the same period, MXN 139 005 million pesos (USD 16 327 million in PPP, on average over the 2013-2017 period, as per OECD data available from https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm#indicator-chart, consulted on 11 September 2018) were invested by the central government between the Multiple Contribution Fund (*Fondo de Aportaciones Múltiples*, FAM, allocated to the federal entities) and the various funding programmes directly allocated to schools. This represents a 328% increase over six years compared to the amounts invested during the previous ten years (according to the data presented to the OECD team during its visit). The increase in investment resulted in tangible enhancements of schools' infrastructure. According to a diagnosis undertaken by INIFED in 2015, 97.44% of the school buildings censed during the CEMABE 2013 had electricity (compared to 89.2% in 2013), 98% had a bathroom (against 86.95%), and 42.8% had access for disabled persons (against 29.25%) (according to the data presented to the OECD team during its visit).

The two main programmes (PRE and ECIEN) allowed for a large amount to be invested in refurbishing and completing the school infrastructure since 2013. The PRE (2014-2018) was launched with the objective to "contribute to reducing the gap between public schools' physical conditions in basic education, and to strengthening school-based

management to promote an education of quality with equity" (SEGOB, 2015[67]). The PRE also acquired new attributions including installing and maintaining water fountains (since 2015-2016) and promoting the use of ICTs (since 2016-2017). From 2016, two older programs for school infrastructure (*Programa Escuelas Dignas*, PED) and school management (*Programa Escuelas de Calidad*, PEC) were incorporated into the PRE to simplify and avoid overlaps. Schools participating in the PRE were allowed to invest in their buildings, hydro-sanitary work, basic furniture, water fountains and technology (SEGOB, 2016[69]).

Some 39 049 schools benefitted from some kind of PRE investment, including 28 286 primary and secondary schools (Mexicanos Primero, 2018[43]). The schools were selected by an Index of educational deficiencies (ICE) built with the data of the CEMABE that identified the two deciles with greater lag in terms of basic infrastructure. During the school year 2016-2017, the PRE dedicated MXN $1 179.8 million pesos for schools' physical and equipment deficiencies (USD $128 million in PPP, as per OECD PPP conversion rate for the year 2017), which allowed 3 159 school communities to get the educational materials and technologies they needed, as well as to refurbish some of their existing infrastructure (SEP, 2017[31]). This benefitted the students who can go to school even when it is raining, or play sports in the courtyard even by hot and sunny days.

Escuelas al CIEN (ECIEN), a programme set up in 2015, aims at improving school infrastructure over the course of three academic cycles (2015 to 2018) with a provisional budget of MXN 50 000 000 000 (USD 5 631 million in PPP, as per OECD PPP conversion rates for the 2015-2017 period) generated by an innovative funding mechanism. ECIEN gave a wider range of options than PRE for participating schools to invest in: basic safety and operational building investments, sanitary services, running water, furniture and equipment, connectivity, administrative office space and space for multiple pedagogical uses, and special installation for children with disabilities (INIFED, 2015[70]). The programme has three steps: surveying and qualifying the schools' infrastructure and resources, providing funds and guidance to help schools improve their infrastructure, and certifying compliance with the criteria (OECD, 2018[32]). ECIEN specifically aims to help 33 000 of the most disadvantaged public schools, selected based on the CEMABE and on INIFED's National Diagnostic of Education Infrastructure (for primary schools), and based on SEP's and federal entities' direct suggestions (for lower secondary schools) (INIFED, 2015[70]).

The provisional budget of ECIEN for the 2015-2018 period is based on an unconventional financial mechanism. Titles known as National Education Infrastructure Certificates (*Certificados de Infraestructura Educativa Nacional*, CIEN) are emitted on the Mexican Stock Exchange (*Bolsa Mexicana de Valores*). CIENs are backed by 25% of future allocations pledged by the federal state to states' Multiple Contribution Fund (*Fondo de Aportaciones Múltiples*, FAM). The titles received the maximum rating (mxAAA) granted by S&P Global Ratings on the agency's country-specific scale for Mexico, which confirmed the agency's positive assessment of the CIENs (SHCP/SEP, 2015[71]; Bolsa Mexicana de Valores, 2018[72]). With this mechanism, federative entities are expected to leverage their resources since they get the funds on time to invest in infrastructure projects (INEE, 2018[8]).

ECIEN had benefitted more than 23 000 schools between 2015 and August 2018. The beneficiaries represented 70% of the schools in which it was possible to intervene, according to INIFED. Overall, INIFED estimates that 4.2 million students were impacted through the physical enhancements funded by ECIEN (according to the data presented to

the OECD team during its visit). Finally, in the attempt to build up schools' capacity to maintain their infrastructure, INIFED led a training course directed to school community members. By June 2018, more than 4 000 people were trained through "Let's take care of our school" (*Cuidemos nuestra escuela*).

Investing in most disadvantaged schools, or in schools with a disadvantaged student population contributes to reducing inequalities, opening for all students an access to equivalent learning resources. As the CEMABE found in 2013 that indigenous schools made up over 25% of the schools in the worst infrastructure conditions, the surge in investment for schools' physical environment since 2013 has been targeted toward the schools most in need, including toward schools with a large indigenous population and schools who tend to students with disabilities. In order to stimulate equal learning opportunities for indigenous schools, the federal support programmes almost tripled the number of indigenous schools among their beneficiaries, going from 3 737 indigenous schools in 2012-2013 to 10 269 in 2016-2017 (SEP, 2017[31]).

For instance, SEP and INIFED had allocated PRE (*Programa de la Reforma Educativa*) funds to some 5 242 of these schools by 2017. Additionally, PRE benefitted more than 7 000 community schools. In 2018, SEP reported to the OECD team that overall, 94% of the schools benefitted by PRE qualified as disadvantaged. Schools' disadvantage was measured either in terms of the groups of students they attended to (indigenous, migrant, or students in telesecondary), or if they scored high or very high on the CEMABE's index of educational deficiencies (for infrastructure) or on CONAPO's index of marginalization (information provided by SEP to the OECD team based on the DGDGE's database of beneficiaries).

Overall, ECIEN has benefitted an impressive number of communities. By 2018, ECIEN was implemented in in 1 421 municipalities out of the 2 457 municipalities in the country. More than 2.2 million students from rural and urban indigenous communities in basic and upper secondary education benefitted from the Programme (data communicated by SEP to the OECD based on INIFED databases). The ECIEN programme also targeted schools in indigenous areas, by tending to the needs of an expected 16 935 schools for about MXN 17.161 million pesos (USD 1 933 million in PPP, as per OECD PPP conversion rates for the 2015-2017 period). INEE acknowledged ECIEN's potential to enhance equity, and recognized the progress made on the projects in indigenous pre-schools and primary schools. However, the same INEE report nuanced the programme's impact in terms of equity, especially considering community schools. More specifically, INEE found that in 2016-2017, the total of ECIEN projects effectively implemented in community schools only represented 1.2% of the total community pre-schools in the country, 0.3% of community primary schools and 0.4% of community lower secondary schools (INEE, 2018[8]). As for marginalized schools in general, INEE found that the programme benefitted fewer municipalities with high marginalization scores than less marginalized municipalities that only 11.7% of the executed projects were in highly marginalized municipalities, against 38% in municipalities with a low degree of marginalization (INEE, 2018[8]).

Not tending to these challenges hinders learning. First, because the education staff is preoccupied about finding funding for daily expenses, which lessen the time they can spend preparing pedagogical issues. School leaders interviewed during the OECD visit report not being able to assume class on rainy days, because the ceiling was leaking; or not being able to go ahead with innovative classes and workshops, because they lacked the space and equipment for the clubs. What's more, schools in disadvantaged areas may

not count with the resources needed from parents nor the community, which risks deepening even more the gap between advantaged and disadvantaged schools.

Building and maintaining a safe school infrastructure are important challenges in Mexico, which is regularly affected by earthquakes. The country's schools were especially weakened by the earthquakes of September 2017. More than 19 000 schools in total were affected (data provided by SEP to the OECD). Reportedly, no public school building collapsed but the number of schools that were severely to gravely damaged was considerable (around 7 000 for higher estimations, INIFED 2017). SEP, INIFED and state education authorities dedicated large resources to repair schools with the goal that all would be rehabilitated on time for the year 2018-2019, and succeeded in rehabilitating a number of them (Mercado and Franco, 2018[73]). By the summer 2018 however, the Mexican Institute of Competitiveness (*Instituto Mexicano de la Competitividad*, Imco) estimated that 2 916 had still not been attended, however (Instituto Mexicano para la Competitividad (IMCO) A.C., 2018[74]). Efforts to prevent future earthquakes to cause similar damages include a new architectural model for infrastructure safety (INIFED, 2018[75]).

Another concern arises when looking at the source of funding for these investments, especially in the case of ECIEN. ECIEN investments were made possible by using municipalities' future stream of revenues as a guaranty. The mechanism is thus counting on 25% of the annual budget that states receive for Multiple Contribution Fund (*Fondo de Aportaciones Multiples*, FAM) for the coming 25 years. Although very innovative, this mechanism hinders local capacity to allocate spending and meet large social needs in other areas (INEE, 2018[8]).

Overall, a strength in Mexico's current approach to equity in education is that equity has been defined as a guiding principle across general and targeted education policies, but this focus needs to continue to ensure the education system has both objectives of equity and quality at its core. This suggests that the priority established in the Constitution needs to be followed, that funding needs to be channeled in a way that responds to both equity and quality, and that there is assurance that current programmes are achieving their expected results of higher enrolment and completion. The investments in school infrastructure and the attempts to raise the standards for daily school operations hold great potential to enhance learning for the most disadvantaged. The results observed so far show that there is still room to improve those programmes' contribution to equity in education, especially by securing funding source to guarantee their sustainability. The last section suggests some insights on how to realise the potential of these initiatives, the targeted programmes and the system-wide policies for more students and more schools, and how to continue advancing equity and quality for all.

Recommendations for future policy development and implementation

Mexico has succeeded in a range of areas to enhance the opportunity to learn for all students. The Constitutional reform has introduced the issue of quality and equity in education as a priority for education services, and further policies have laid a strong basis to progress.

Furthermore, progress in equity has advanced on two fronts. In terms of system-level policies, Mexico has focused on expanding and improving enrolments in ECEC and upper secondary education, on aiming for transparency in overall funding; establishing basic conditions for all schools to comply with; and supporting the consolidation of all-

day schools. In terms of targeted programmes, the NME introduced a Strategy for Equity and Inclusion in Education (*Estrategia para la Equidad y la Inclusion en la Educación*, 2017) aiming to build a coherent approach to the different existing equity programmes. Furthermore, several programmes and initiatives have targeted their attention and resources to specific vulnerable groups such as the full-day school programme, CONAFE's ABCD model in rural areas or indigenous education programmes by the DGEI. There has also been considerable investment in educational infrastructure across the country.

It is important to review these investments to ensure they are coherent and implemented to reach disadvantaged schools and students, while also enhancing quality. Building on the previous analysis, this section proposes ways to ensure that Mexico continues towards advancing high-quality learning for all students in the future. More concretely, Mexico might consider the following system level and targeted approaches to enhance equity: i) ensuring that funding resources are distributed equitably between schools; ii) guaranteeing that disadvantaged schools receive and retain adequately qualified education professionals; iii) monitoring the coherence and impact of targeted programmes; and iv) consolidating school infrastructure by continuing to invest in the maintenance of the physical.

Introduce educational and school funding formulas so resources are distributed equitably between schools

In general, the process for schools to obtain resources in Mexico is administratively complicated and does not allow for covering schools' immediate necessities. The direct allocation of budget to schools through the School at the Centre (*La Escuela al* Centro) strategy is still in infancy, and limited in scope considering the number of schools in the country. All schools have expenses including (but not limited to) to hire replacement teachers, provide additional support to disadvantaged students, refurbish the equipment or purchase educational supplies such as paper, printer, cleaning and other material needs. Schools thus rely heavily on parental monthly contributions or the community members' own skills and resources for their daily necessities. This creates issues of both sustainability and equity across schools, and even within schools, as schools in more affluent communities are in a position to gather more resources. In addition, some dual shift schools may have different parental contributions –often the morning shift is thought to be of higher quality, therefore the children whose parents can pay a higher contribution tend to attend at the expenses of more disadvantaged students.

Mexico could consider reviewing the funding mechanisms, to allow schools some leeway for their expenses (OECD, 2017[45]). More concretely, Mexico could:

- **Review educational and school funding formulas so the distribution of federal funds can be more equitable between states and between schools.** Mexico has already significantly developed targeted funding, as it allows for steering the use of public resources for equity. In Mexico like in other countries, however, there is a risk of overlapping and confusion between programmes. Mexico should thus turn its attention to allocating additional funding within the scope of the main distribution mechanisms, which consists in making the main allocation mechanisms more equitable. This simplifies the overall funding of equity measures and allows for including equity as a guiding principle even within the general school funding policy.

For instance, Mexico could create an Education Quality Index and take it into account in the formula to allocate FONE funds, as several national experts have suggested. More generally, socioeconomic and geographical factors should be taken into account in the funding formula. Other countries are trying to find their own approach. For instance, Chile allocates the main grant for general education with a funding formula that incorporates different weights for students from highly disadvantaged socioeconomic backgrounds, for schools in rural or highly isolated areas, and for special educational provision. Central authorities also allocate earmarked grants to school providers for students with special educational needs and from disadvantaged backgrounds and a salary complement for teachers working in "difficult schools" either due to their geographic location, marginalisation or extreme poverty. The calculation of these earmarked grants is also based on a funding formula. In the Flemish and French Communities of Belgium, the main allocation mechanism has weights as well; and so does the provision of dedicated grants. Funding formulas are also used for additional targeted funding (OECD, 2017[45]).

- **Monitor the reception and use of public resources in order to ensure transparency and accountability**. This would be considerably facilitated by the fact that the country has tremendously developed its capacity to monitor the education system (e.g. through various surveys and censes, INEE studies and through the budding SIGED). To this extent, Mexico could consider strengthening the role of Social Participation Councils (*Consejos Escolares de Participación Social en la Educación*, CEPSE), to guarantee accountability in the use of education funds at the community level. CEPSEs could report on the reception and use of the funds on a yearly basis, for instance. This recommendation aligns with the recommendation made in Chapter 5 about facilitating self-evaluation for greater autonomy in schools and guaranteeing accountability at school level.

Guarantee that disadvantaged schools attract and retain qualified education professionals

In Mexico, principals of disadvantaged schools report receiving fewer educational material and staff than advantaged schools. Mexico is among the PISA countries for which this difference is the largest (OECD, 2016[2]). Evidence also shows that teachers in more vulnerable schools such as community and indigenous structures tend to be less prepared, have less experience and less education than teachers in more privileged schools both in Mexico and in OECD countries in general (Luschei and Chudgar, 2015[23]). This is all the more so concerning since cross-country correlations show that gaps in student performance related to socio-economic status are wider when fewer qualified and experienced teachers operate in socio-economically disadvantaged schools, compared to advantaged schools (OECD, 2018[76]).

One important area in which Mexico should embed equity as a guiding principle is in its allocation policy of the education workforce. Cross-country comparisons show that education policies ensuring that high and consistent teaching and learning standards are applied in across all classrooms (OECD, 2017[77]). Countries can compensate for student disadvantage by investing more teacher resources and/or allocating better-qualified teachers to high-need schools (OECD, 2018[76]). To avoid that good and excellent educators only teach in more privileged areas, Mexico could:

- **Provide incentives to encourage high quality teachers and school leaders to opt for rural and disadvantaged communities**. The mechanism should not only attract the top professionals to marginalized schools, it should also retain them for a few years in order to reduce the negative effects of turnover in vulnerable areas. The incentives should be part of the Teacher Professional Service's mechanisms for recognition (*reconocimiento*) and promotion (*promoción*), and could take the form of salary surpluses and options for career progression. Incentive mechanisms to attract, reward and retain skilled professionals in disadvantaged areas are used in other countries. In the U.S. for instance, researchers find that wage bonuses can reduce turnover rates in disadvantaged schools (Clotfelter et al., 2008[78]). Given the current centralized payroll in Mexico, a reward system to allocate teachers, school leaders and technical pedagogical advisors (ATPs) more equitably should be very carefully designed, with attention paid to individual schools' needs.
- **Continue investing more generally in preparing education professionals, and including specialized training for teachers working in disadvantaged schools.** The Teacher Professional Service and its mechanisms aim to ensure that all teachers, school leaders and other education professionals are highly qualified and trained, As such, Mexico should reduce the overall risk of having unqualified individuals in the educational workforce and by extension, of finding such teachers in disadvantaged schools. For instance, Korea has been investing in the teaching profession, and Korean teachers in general are all expected to be highly performing professionals. All teachers are highly respected, enjoy job stability, high pay, and positive working conditions, including high levels of teacher collaboration and therefore no matter which teachers are assigned to a disadvantaged school, they will not be as prepared as teachers in more advantaged areas (OECD, 2018[76]). This form of investment should be strengthened for the long term, but it does not replace the more immediate actions emphasized (such as monetary and promotion incentives).

Monitor the coherence and impact of targeted programmes

Mexico should continue its efforts to strengthen and bring coherence to the numerous student- and school-targeted programmes to enhance equity in the system. The overall effort towards more equitable education is showing some effectiveness, as Mexico has improved equity over the past decade. The design of these policies is also well aligned with international evidence. Some of these programmes should be maintained and closely monitored to guarantee their continued effectiveness, including (but not limited to) the Full-day schooling programme (PETC), the Movement against school dropout (*Movimiento contra el abandono escolar*) and the CONAFE's ABCD model (*Aprendizaje Basado en la Colaboración y el Diálogo*). Cross-country comparisons show indeed that education policies that can foster improvements in equity and performance include targeting additional resource to schools with a high concentration of low-performing and disadvantaged students to keep them from falling behind (OECD, 2015[17]).

In any instance, Mexico should aim to strike a balance between funding through regular allocation mechanisms and through targeted programmes to specific students, schools or areas. Targeted programmes are flexible and may be used to allocate funding to priority areas and to emerging priorities. However, excessive reliance on programme funding may generate overlap, difficulties in co-ordinating allocations, inefficiencies, which may hinder schools' sustainability in the long-run (OECD, 2017[45]). Equity programmes remain numerous (even though there has been a consolidation effort under the new

educational model) and sometimes target the same population or the same issues. They might overlap and thus reduce the efficiency of the overall strategy for equity. Based on these observations, Mexico should make sure the programmes targeted to support the most disadvantaged schools and students reach their targets, and that they actually bridge the gap in terms of learning and other educational outcomes (such as remaining in school or completing studies). More concretely, national and state authorities could:

- **Monitor the coherence and impact of existing programmes for equity**. The institutions in charge of monitoring education policies –such as the INEE, states and SEP- should keep assessing the impact of the various programmes in the schools that have already been implementing them for several years, and make sure that the results of the evaluations inform further policy decisions. Especially, evaluators should assess the complementarity and/or overlap between the various programmes to enhance school infrastructure. The question of overlap is particularly important for resource efficiency, given that programmes all share the same aim to enhance the school infrastructure, especially for disadvantaged schools.
- **Evaluate to what extent programmes to support disadvantaged students enable them to integrate and do well in the "regular" education system**. The ultimate goal of equity programmes is indeed to close the educational gaps between the disadvantaged and more privileged students, not to create parallel underperforming systems. For instance, a question could be whether the students taught through the CONAFE's successful ABCD model end up joining the regular education system and do well in it. In terms of programme monitoring and evaluation, an example from Mexico itself could be applied to other programmes: for 17 years, PROSPERA has been a worldwide example of a well-monitored conditional cash transfer programme (The World Bank, 2014[79]). Annual evaluation results show that the programme helps keep students in schools, especially in upper secondary education (Estrategias de Acompañamiento y Servicios Educativos S de RL de CV (EASE), 2015[80]; Mir et al., 2016[81]). The rigorous evaluation system attached to the programme has enabled its continuous monitoring and assessment, making it possible for several administrations to sustain the project while adapting it to new challenges –evidence being the recent expansions of the programme's scope (Martinez Valle, 2016[82]).
- **Maintain and scale up the programmes that prove effective, such as the full-day schooling programme (*Programa Escuela de Tiempo Completo,* PETC**). A long-term goal in the case of PETC could be to turn progressively the programme into a system-level policy, so full-day schools become the norm rather than the exception. This evolution would require careful design however, as it implies costly transformations for the Mexican system. For instance, before extending the programme to more schools, authorities should make sure that schools have enough space and resources to welcome all students in one longer day, rather than some in the morning and some in the afternoon. It must also be guaranteed that all students can have lunch at schools, which requires an affordable solution in order not to increase inequalities between students. In any case, when such programmes prove effective in enhancing equity, support should be provided for disadvantaged schools to implement them in the first place.

Consolidate school infrastructure and continue with investment and maintenance of the physical environments

The scope of Mexico's recent investment in school infrastructure is remarkable. In order to reap full benefits from this much-needed support to physical environment, federal authorities should nonetheless enhance their investment strategy by prioritising their investment and securing sustainable sources of funding. To consolidate this effort, Mexico could:

- **Review carefully the ECIEN funding allocation approach to invest in and maintain its school infrastructure in a sustained way.** Although the ECIEN programme has enabled a large share of investment in infrastructure since 2013, its funding model may be jeopardising municipalities' finances, while many schools still lack infrastructure, and those that have received funding need maintenance. Mexico can find other approaches that do not deliver one-time investments, but more sustained approaches to infrastructure long-term maintenance of infrastructure.
- **Focus resources for infrastructure on those schools that do not reach the basic standards of safety as set up by INIFED**. Testimonies brought to the OECD team, as well as reports on the slow progress made to rebuild earthquake-affected schools since 2017 lead to think that many Mexican schools do not meet these standards. However, these schools should be the priority for Mexican investment, as the literature finds that an improved physical environment has the greatest effect on learning and equity improvement in schools and areas where the conditions are the most basic. CTEs are supposed to assess the physical state of their school every year as part of the school's strategic plan. This could constitute a regular information inflow to be used at the state and the central level, to plan for the year's expenses on infrastructure.
- **Find a balance between guaranteeing that all students have appropriate physical conditions to learn and stretching resources too thin across all schools.** One approach could be to merge some of the very small schools spread out across one area, to concentrate resources in bigger, complete school complexes. These require a number of changes, including in the communities' habit of having a village school, or in providing transportation for the students. Such systems are still being experimented in Campeche, Mexico, and monitored closely (*Programa de Consolidación de Escuelas y Transporte Escolar*, PCETE). As of the summer 2018, initial data collected by SEP show some positive results of the pilot. The pilot should be monitored until it finishes, after what the initiative could be scaled up to allow more students to access better infrastructure, while not sprinkling public resources on myriads of small schools (SEP, 2018[83]).

Notes

[1] The level of marginalization is measured by CONAPO's marginalization index. The index has four basic dimensions: education (illiteracy, share of the population who has not completed primary education); housing (house without the basic services such as water sewage, safe water systems, electricity, concrete floor); population distribution (proportion of the population in localities with fewer than 5 000 inhabitants); and income (share of the population with income lower than two minimum wages) (Santiago et al., 2012[87]).

[2] Given schools' limited resources, teachers tend to use part of their own salary to purchase the supplies necessary to teach. This was reported to the OECD team during its visit in June 2018 as well as in a previous OECD study (OECD, 2010[25]))

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Chapter 3. Providing 21st century learning to all students

This chapter analyses the most recent curricular reform introduced in the Mexican education system, which focuses on delivering 21st century knowledge and skills to Mexican students. It presents the main characteristics of the new curriculum, its content and the tools that schools and teachers have to adapt it to students' specific needs. It reviews the curriculum reform process and provides a set of recommendations in terms of remaining challenges, especially on how the curriculum can reach schools and classrooms and how schools, their leaders and teachers can best be supported to implement it.

Introduction

For societies to thrive in the future, youth must be prepared to respond to the challenges and opportunities posed by the 21st century so they can shape their own and their country's future. In this perspective, a good education system is one that provides students with high-quality content and learning environments adapted to the 21st century, and combines equity with quality: it delivers high quality education for all its population (OECD, 2012[1]). This is at the heart of high-performing education systems, which combine quality with equity, and it is what Mexico has been aiming towards in recent years.

Following the constitutional reforms and the subsequent modifications of the General Law of Education (*Ley General de la Educación*, LGE, 2013), Mexico's legislators decreed that the relevant authorities should soon revise the country's educational model. More specifically, they inscribed in one of the transitory articles modifying the LGE that the curriculum should be adapted to this new ambition of high quality for all set for the Mexican education system. The country thus started a large-scale consultation process involving numerous stakeholders to define the pillars of the New Educational Model (*Nuevo Modelo Educativo*, NME). One of its key issues for discussion was the design of a new curriculum for basic education that could better prepare young Mexicans to the challenges they will face in their adult life. These changes took the form of the curricular reform built between 2014 and 2017.

Mexico has successfully designed a curriculum for the 21st century that responds to the challenges face by the country and aligns with the vision and purpose it defined for its education system, while at the same time blending in some of the best practices acknowledged internationally. This chapter analyses the curricular reform in light of Mexico's constitutional mandate of enhancing both quality and equity in education. More concretely, it puts emphasis on the following aspects:

- the importance of establishing a curriculum around student learning
- the relevance of setting high expectations for all students
- the advantages of providing curricular autonomy to schools.

This chapter discusses how the new curricula aims to prepare students in Mexico for the challenges of rapid technological change and new forms of learning while securing that learning of quality happens for all students. It then presents the progress done in this area concerning preparation for the introduction of the New Educational Model. It concludes with an analysis of remaining challenges and recommendations to address them, focused on implementation.

Policy issues to focus the curriculum on all students' learning

In line with a range of countries that have undertaken reforms to adapt to the 21st century, the NME aims to provide the basis for all young Mexicans to develop the knowledge, competencies, cognitive and non-cognitive skills, values and attitudes they need. This section analyses the design of the curricular reform, its coherence with the vision and the mandate of high quality for all that Mexico set for its education system. It does so in the light of evidence and acknowledged good practices and experiences in other education systems.

A curriculum built around student learning

With one of the youngest populations in OECD countries, Mexico can have a strong demographic advantage if it can develop the skills necessary for its youth to thrive in its fast-changing society and economy (OECD, 2017[2]). This will depend on the skills and competencies Mexican students develop in compulsory education. Mexico is a very diverse society, enriched by the various groups that contribute their different cultures, languages and perspectives. The territory itself offers a wide range of climates and land characteristics. Like in many countries, this diversity is both a great strength and a core challenge for Mexico to harness. It has to make sure that all Mexicans can receive equal learning opportunities, which in turn helps enhance social mobility within the country (Delajara and Graña, 2017[3]). Mexican students should also learn to know themselves, and respect and collaborate with each other, that they understand the difficulties that their fellow citizens face. These crucial learning components are at the heart of curricula that still have to be incorporated across many OECD countries and beyond (OECD, 2018[4]).

Mexico's 15-year-olds skills have been slowly enhancing since 2006 according to PISA, but they remain among the lowest scoring across OECD countries (OECD, 2016[5]). Results of the new national student performance tests (PLANEA) show that Mexican students often score within the two lower levels of its four-level scale (Level 1 is "insufficient" and Level 2 is "barely reaching the essential") (INEE, 2016[6]). This means that in 2017, barely 25% of Mexican students have a satisfactory or outstanding level in language and communication, and only about 15% students reach these levels in mathematics by the time they leave lower secondary education (*tercero de secundaria*) (SEP, 2018[7]). These data should be interpreted with care however, especially the variation in PISA results, as the increase in enrolment rates for the 15-to-19 year-olds might bias the results downward because of a greater share of potentially lower-performing students (OECD, 2018[8]). The progress of students previously enrolled could therefore have been greater than what the PISA data shows, if the share of lower-performing students has increased. However, this also points to the efforts Mexico made, and those that remain to enhance equity throughout its education system. Also, recent information revealed by PISA, indicate that the minimum scores observed among the 25% of top-performing youth increased substantially (about 10 points per three-year) and this shows than when more disadvantage children gain access to education for the first time, the remaining students can also benefit (OECD, 2017[9])

The curriculum in compulsory education is one of the many factors that influence students' academic, personal and social development, as it contributes to forming students' knowledge base and skills. The new curriculum results from two decades of reflection on putting the student at the centre of the learning process. It builds upon the previous attempt of the RIEB (*Reforma Integral de la Educación Básica*, Integral Reform of Basic Education, 2004-2011) to establish a curriculum centered on student learning. The 2004-2011 curriculum had made some progress on a competency-based approach, formative assessment for students and sequencing learning within and between the different levels of education. Although this attempt did not translate this new approach into the reality of classroom practices, it did highlight the need for a new teacher profile, linked with the new pedagogical approach suggested (Sánchez Regalado, 2012[10]).

In spite of these efforts, however, traditional teaching and practices seemed to have prevailed at the expense of the RIEB's new approach. According to SEP, the former pedagogical model had several flaws to address. For instance, it relied on memorizing and repeating rather than teaching methods that put learners at the centre; the gaps in learning

expectations from one grade to the next were large; the curriculum was content-heavy and did not grant the students time enough to deepen the subjects; and the curriculum did not include socio-emotional skills nor English as a compulsory subject (SEP, 2017[11]). Current evidence shows however that dynamic learning methods which leave agency to the students; clear and sequenced learning expectations across the school career; balance between content load and time for reflection; and non-cognitive and communication skills are essential for the youth to thrive in the 21st century (OECD, 2018[4]). These were enough concern for the administration and legislators to call for a new curriculum.

Experts nuance the diagnostic defended by the administration. Most do not do so to attack the innovations of the 2017 curriculum. Rather, they give credit to allowing for some continuity between curricula, while shedding light on what they see as aesthetic changes. For instance, the 2017 curriculum shifts from a "competence"-based to a "learning"-based approach, and incorporates the pedagogical principles of "learning to learn", "learning to be" and "learning to coexist" instead of "competencies for life" (*competencias para la vida*). This does not fundamentally change the nature of the key knowledge, skills and competencies included in the curriculum (Chuquilin Cubas and Zagaceta Sarmiento, 2017[12]; Torres Hernández et al., 2018[13]). This is rather reassuring for teachers and students who can better grasp what is expected of them. As developed below, the 2017 curriculum brings some widely-acknowledged innovations among which some clear vision of student development with an integral vision, which comprises academic, social, emotional and physical development, for instance, through the integration of socioemotional skills as key learning outcomes (*aprendizajes clave*) threaded in the entire curriculum, and the inscription of English as a compulsory subject..

At its simplest, curriculum is defined as a "plan for learning" which sets out (among other elements) the rationale and aims of student learning, its content, and the materials and resources used in the process (van den Akker, 2007[14]). Depending on the education system, a curriculum can be limited to framing guidelines for lower levels of governments and schools to create their own curricular content, or it can go into details about the learning objectives and methodologies; the related pedagogical activities and materials; and the corresponding assessment criteria and techniques. Mexico's new curriculum defines not only the learning objectives, contents and their structure, but also the corresponding materials (e.g. including textbooks); it suggests pedagogical activities and defines learning standards by grade. Observers during the OECD visit noted that it is more broadly defined than previous curricula in Mexico, and that teachers will have more flexibility than before in course design.

The curriculum for compulsory education in Mexico builds on a humanistic view of education and aims to provide a high quality, holistic education to all. A premise is the observation that 21st-century learners' needs are complex, and that education must prepare students for the unknown[1]. The new curriculum also acknowledges recent progress in education research, including the role of the social and physical environment in learning as well as the necessity to adapt to learners' special needs in the process (SEP, 2017[15]). Some of its core principles show efforts to ensure some continuity with the previous curricular reform of 2011 (*Articulación de la Educación Básica*).

The learners and their needs are set at the centre of the process, and deep learning methods are promoted over memorization alone. This aligns with recent curricular reforms and efforts to change the national curriculum in a wide range of education systems. Box 3.1 details two such efforts, in Finland and in Wales.

Box 3.1. Selected curricular reforms across OECD: focus on student learning

Finland

The most recent comprehensive curricular reform in Finland was conducted between 2012 and 2016. It aimed to enhance quality and equity by modernizing learning, teaching methods and learning environments, and by promoting a new school culture. Traditional subjects are still taught as separate courses, but their content and the ways to teach and assess them changed to reflect real-life situations where transdisciplinary approaches and transferable competences are needed (Finnish National Agency for Education, 2014[16]). The new national curriculum was designed as a broad framework that local municipalities and schools then take and adapt to their own individual context (Hopkins, Nusche and Pont, 2008[17]). It offers guidelines for the overall provision of education as well as the objectives and key instruction content. It also details the new cooperative culture expected to be developed in schools, gives instructions and guidance for its own implementation, and offers some support for learning, pupil welfare as well as assessment of learning (Finnish National Agency for Education, 2014[16]).

Wales

Wales engaged in a major reform of its curriculum and associated assessment arrangements, declaring they had to embody the aspirations that Wales has for its children and young people. Formalized in *A curriculum for Wales –A Curriculum for Life* (Welsh Government, 2015[18]), these aspirations consist in becoming:

- ambitious, capable learners, ready to learn throughout their lives
- enterprising, creative contributors, ready to play a full part in life and work
- ethical, informed citizens of Wales and the world
- healthy, confident individuals, ready to lead fulfilling lives as valued members of society (Donaldson, 2015[19]).

To respond to these "four purposes", the new curriculum framework organises learning into six transdisciplinary Areas of Learning: 1) expressive arts; 2) health and well-being; 3) humanities; 4) literacy, languages and communication; 5) mathematics and numeracy; 6) science and technology. Three fundamental competences (digital competences, literacy and numeracy) were defined as "cross-curriculum responsibilities", to acknowledge how each Area contributes to enhance students' mastery of the. With this new framework, the aim is to make learning more experience-based, the assessment of progress more developmental, and to give teachers the flexibility to deliver in more creative ways that suit the learners they teach.

In Mexico, the vision of the Mexican learner in the 21st century is outlined in the Letter on the Purposes of Education (*Carta de los Fines de la Educación*), which was discussed and validated through the 2014-2016 consultation process (see Box 3.2).

Box 3.2. The purpose of education in Mexico (final version agreed in 2017)

"The purpose of basic and upper secondary public education is to contribute to educate citizens that are free, responsible, informed, able to exercise and defend their rights, and who participate in the social, economic and political life of Mexico. This means that these individuals should have the motivation and the capacity to succeed in their personal, professional and family life; that they should be ready to improve their social and natural environment, as well as to learn throughout their life in a complex and fast-changing environment.

More specifically, all students who finish compulsory education should be able to communicate correctly, confidently and efficiently in Spanish and in any indigenous language in case they speak one; to identify key ideas in texts to make conclusions; to communicate in English; to use hypothetical, logical and mathematical thinking and to solve daily and complex problems; to be capable of analysing as well as synthetizing; to know how to argue, be critical, reflexive, curious, creative and demanding; to learn about natural and social processes, about science and technology to understand their environment; to be competent and responsible in their use of information and communication technologies; to have the ability and the desire to keep learning throughout their lives.

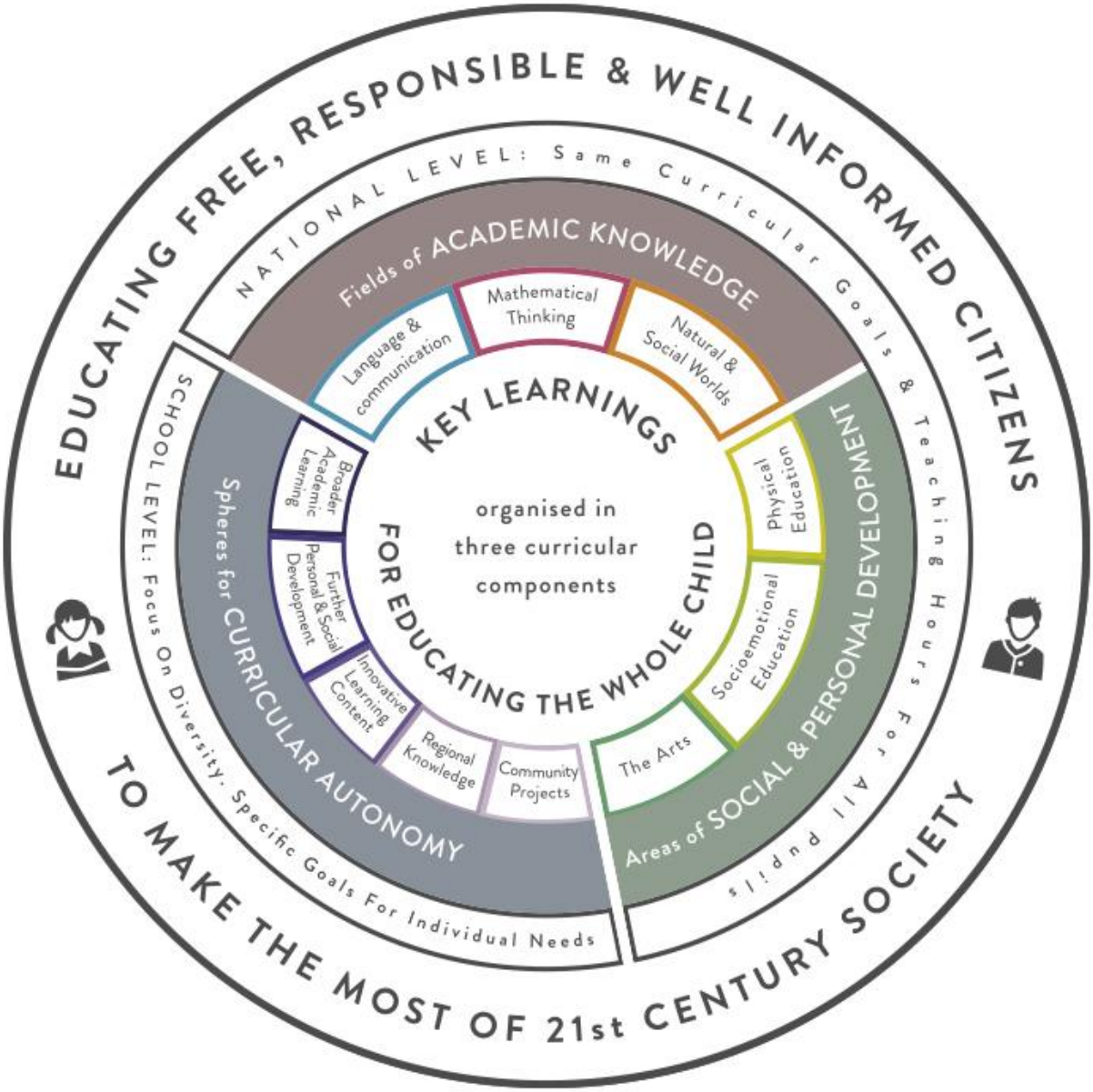
These individuals should know and respect themselves; accept and value their identity; reflect on their own acts; know their weaknesses and strengths; be confident in their abilities; be determined and perseverant; acknowledge the equality of all human beings in their rights and dignity; and empathize with other people and cultures; work in team and develop leadership skills; prefer dialog, reasoning and negotiation to resolve conflicts; care for their physical and mental health; take reasoned and responsible decisions to adapt quickly and efficiently to surrounding changes, and be able to elaborate and follow a plan to build a fulfilling life. They are driven by values, behave ethically and coexist in harmony; know and respect the law; defend the Rule of Law, democracy and human rights; promote gender equality; value ethnic, cultural and language diversity in the country and worldwide; know the histories that unite us and give us identity and belonging to a territory in the global context; feel love for Mexico; be creative and have a sense of aesthetics, appreciate culture and the arts; take care of the environment; participate in a responsible manner in public life and contribute to sustainable development in their community, the country and the world. This conception of the Mexicans that we want to educate requires that students progressively master the key learning outcomes they are expected to attain during their schooling."

Source: SEP ($2017_{[20]}$), *Los fines de la educación en el siglo XXI*, https://www.gob.mx/nuevomodeloeducativo/documentos/carta-los-fines-de-la-educacion-en-el-siglo-xxi-2.

In line with Mexico's diagnosis of its own needs and with international evidence, the 2017 curriculum relies on a sequence of graduation profiles (*perfiles de egreso*). These profiles were defined from basic education to upper secondary levels for the first time, in the attempt to define a coherent progression throughout education levels. They determine what the students should have learnt by the time they finish each grade. The curriculum's structure is composed of three main areas, including academic items (*campos de formación académica)*, personal and social development elements (*áreas de desarrollo personal y social*), and a set of pedagogical activities left for the schools to design autonomously (*ámbitos de autonomía curricular*). These span the four fundamentals of

education: learning to know, learning to be, learning to coexist and learning to do (Delors, 1996[21]). Integrating these four aspects of learning into the new curriculum is a way for Mexico to adapt widely acknowledged pedagogical principles to its own context. Figure 3.1 displays the curricular components and their structure.

Figure 3.1. New curriculum for basic education: Key Learning Outcomes for Integral Education



Source: SEP (2017[22]), *Aprendizajes clave*, Aprendizajes clave para la educación integral, https://www.aprendizajesclave.sep.gob.mx/.

The graduation profile for compulsory education (*perfil de egreso de la educación obligatoria*) is based on the three main areas, and on eleven fields of learning (*ámbitos*), including language and communication, mathematical thinking, understanding the natural

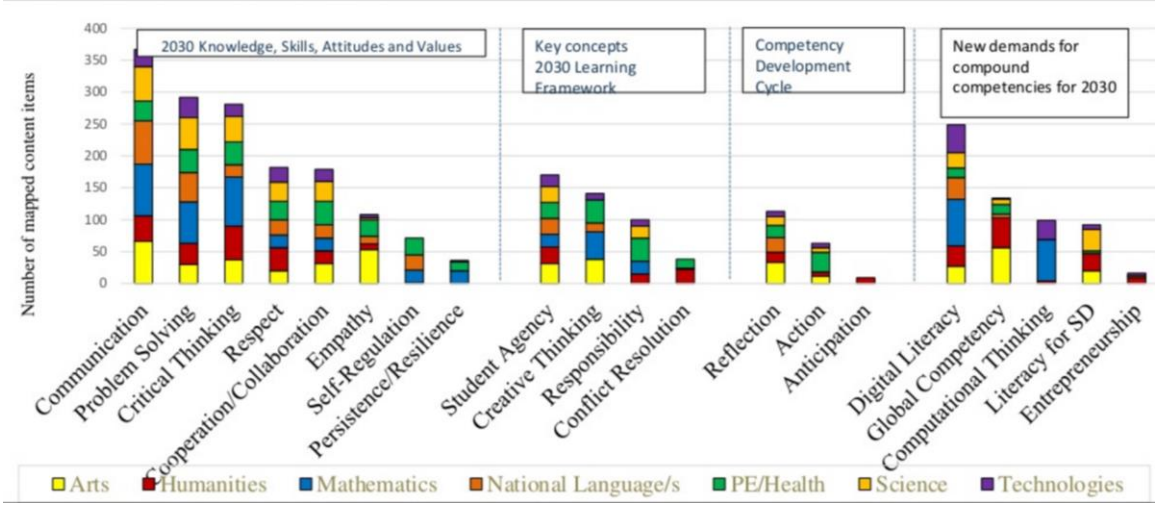
and the social world, physical and socioemotional educations, and the arts. Each education level has key learning outcomes in each field, and these outcomes are connected, becoming more complex and introducing more knowledge and skills until the student reaches the end of compulsory education and the expected graduating profile.

A dedicated chapter of the Study Plan (*Plan y programas de estudio para la educación básica 2017*, PyPE*)* details each subject's purpose and general principles; it describes its specific curricular structure and learning standards; and it suggests an array of pedagogical methods and assessment approaches to guide teachers. In general, the guidelines provided to teachers suggest switching between punctual and recurrent pedagogical activities depending on the topic at hand; sharing the time between getting information, reflecting on the issues and analyzing them both individually and collectively; and it sets forth using a mix of didactic sequences and project-based activities (SEP, 2017[23]; SEP, 2017[22]). These general guidelines are coherent with what international evidence suggests are good teaching practices for modern curricula (OECD, 2018[4]). The website aprendizajesclave.sep.gob.mx provides publicly pedagogical orientations and suggestions for assessment for each key learning outcome, in each subject of every grade. A final section of the Study Plan outlines what changes from the previous curriculum to the new one for each subject.

Mexico is one of the first countries to include socioemotional education as a compulsory component in their curriculum (according to Pr Rafael Bisquerra Alzina, expert in emotional intelligence education, cited in (Pérez, 2017[24]). Aligning with the interest in socioemotional education worldwide, Mexico aims to develop socioemotional skills in its students to help them know and understand themselves, self-knowledge (*autoconocimiento*), control their own emotions and be persistent, self-managment (*autorregulación*), be autonomous (*autonomía*), empathize, social awareness (*empatía*) and collaborate (*colaboración*) with others, relationship skills (SEP, 2017[23]).

The new curriculum allocates half an hour per week to socioemotional education in pre- and primary school, and one hour in secondary grades, but insists that socioemotional skills should be worked on and acknowledged at other times in the week, when teaching other subjects. This aligns with international evidence on good practices to facilitate socioemotional learning, which include (but are not limited to): defining a specific study plan for socioemotional learning; developing socioemotional skills in the traditional curricular subjects; and fostering collaboration and using projects and inquiry as a basis for learning in general (World Economic Forum, 2016[25]). Other countries investigate the topic or include socioemotional skills (also known as non-cognitive skills) as key skills to develop through all subjects, including for instance Finland and Wales (see Box 3.1). International evidence shows indeed that socioemotional skills can be developed through virtually all traditional subjects. For instance, cooperation and collaboration skills can be spurred by activities in the arts, humanities, mathematics, national languages, physical and health education, science and technologies as shown in Figure 3.2.

Figure 3.2. Development of non-cognitive skills through subjects in curricula, 2018



Note: Results are mapped based on the study of the curricula for ISCED 2 in 4 countries and jurisdictions participating in the OECD Learning Framework 2030 project.
Source: Schleicher (2018[26]), *What knowledge, skills, attitudes and values will today's students need to thrive and shape their world?*, OECD Publishing, Paris, https://www.slideshare.net/OECDEDU/what-knowledge-skills-attitudes-and-values-will-todays-students-need-to-thrive-and-shape-their-world.

Setting high expectations for all students

The key learning outcomes defined in the new curriculum (*aprendizajes clave*) set clear expectations for student learning in each subject of each grade. "Learning attainments" or "learning outcomes" are "…statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence" (Cedefop, 2014[27]). Evidence points that rigorous curricula that provide the basis to reach high standards of learning with adequate support can help students achieve their potential (Riley and Coleman, 2011[28]).

The PyPE specifies the expected levels of attainment (or learning outcome objectives) per grade in order to smooth out students' progression in each subject. It does so for all grades in basic education (2017), starting with pre-primary education (*educación preescolar*), up to lower secondary education. It was made sure that the pedagogical guidelines used for initial education (*educación inicial*, between 0 and 3 years old) aligned with the new curriculum. Therefore the new pedagogical model launched for initial education of the children between the age of 0 and 3 (*Programa de educación inicial: un buen comienzo*, Programme for initial education: a good start, 2017) align with the curriculum for basic education (SEP, 2017[29]). Efforts are also still being made to align the learning progression between basic education and the Common Curriculum Framework of upper secondary education (*Marco Curricular Común*, 2008). Table 3.1 displays an example of such learning progression in the Spanish-as-first-language module, from the first to the last cycle of primary education.

Table 3.1. Expected learning progress on the ability to summarise in Spanish

AREA	Social practices of language	PRIMARY					
		1st Cycle		2nd Cycle		3rd Cycle	
		1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
		Expected learning					
STUDY	Elaborating of texts that present summarised information coming from different sources	Summarises information about known natural and social processes		Elaborates summaries which describe natural processes and historical events		Elaborates summaries of various works	
						Uses informative texts to expand one's knowledge on various themes	

Source: OECD elaboration based on SEP (2017[30]) *Aprendizajes clave para la Educación Integral. Plan y programas de estudio para la educación básica. Lengua materna Español*.

The definition of learning outcome objectives in Mexico also gave way to new guidelines in terms of student assessment in the classroom. Globally, the idea behind the new assessment system is to move away from traditional grading scales and toward a scale that is directly connected with attainment indicators (*indicadores de logro*), which defines levels that are meaningful pedagogically. Based on the scale used for PLANEA (the national external student assessment), a scale of four levels of performance (*niveles de desempeño*) serves to assess the level of students in each key learning outcome in the classroom: Level IV (*N-IV*) indicates an outstanding mastery of the expected learning outcome (*aprendizaje esperado*) while Level I (*N-I*) indicates an insufficient performance compared with expectations. The grading practices will be adapted to the age group and to the subject being evaluated (SEP, 2018[31]):

- In pre-primary levels, assessments will result in qualitative appreciations of the student's level using the four levels on each expected learning for this student's grade.
- In primary and lower secondary, the assessment will also use the four performance levels as purely qualitative appreciations for the arts, socio-emotional educations, physical education and the activities realised in the scope of curricular autonomy.
- In terms of academic subjects, the four levels will be linked to a grade between 5 and 10, with number 10 corresponding to N-IV, numbers 8-9 to N-III, 6-7 to N-II, and 5 to N-I, the only failing grade.

Learning outcome objectives and levels of performance spelt out in the curriculum cannot guarantee by themselves that student learning will improve. Experience shows that some mechanisms such as targeted professional development activities for local educators and setting new inspection standards to be applied by inspectorates are essential to enable the change to an approach based on learning outcomes (Cedefop, 2016[32]). Even if the grading scale shifted towards a more qualitative approach, as it is the case in Mexico, what matters for learning is how and what the results of this evaluation are used for. In other words, changing the scale is only going to improve student learning if it comes with the pedagogical instruments that enable teachers and students to associate these results with ways to improve in specific learning areas (whether with numerical or qualitative results).

The educational approach and teaching support mechanisms are also essential for learning outcome objectives to successfully contribute to student learning: teachers, who need to adapt their practices to this approach, require well-elaborated pedagogical support and material (Cedefop, 2016[32]). Teachers themselves also need to be flexible in their teaching, and master the subject area and competences aimed for students to develop (Looney, Siemens and Miller, 2011[33]). The way educational staff is assessed, the opportunities they have for training and professional development and the way they interact can facilitate this change in pedagogical practices, and directly impact student learning as well (Hattie, 2017[34]). Evidence has shown the effectiveness of a range of practices, including formative assessment, time spent reflecting on own teaching practices (OECD, 2013[35]), and collaboration between peers (Pont, Nusche and Moorman, 2008[36]), provided the school has the autonomy to do so.

This learning outcome based approach adopted by Mexico is supposed to support greater equity of learner outcomes, taking into account that all students are considered able to achieve at least the same level of outcome, no matter what their socio-economic background is. Learning outcome objectives materialise for students what the education system expects them to learn. Students' self-expectations are a significant factor among the many that influence learning inequalities. If the learning objectives are set lower depending on student characteristics, they are rather likely to stigmatize these students by signalling that the system expects less of them than of others. Research shows that lower expectations have negative consequences on the delivery of the curriculum, the quality of instruction provided by teachers, and especially on the students' self-esteem, aspirations and motivation to learn (Leithwood, 2010[37]; OECD, 2012[1]).

Learning outcome objectives provide a reference against which to measure one's achievement, but they don't (theoretically) constrain individual students on the means to attain standard levels. There are many ways to acquire knowledge and skills for students, and with enough pedagogical flexibility, a learning outcome based approach respects students' diversity in learning (Cedefop, 2016[32]). What's more, teachers with good diagnostic skills may identify individual learners' needs and support them to reach the outcome, whatever their socioeconomic background is (Cedefop, 2008[38]).

Curricular autonomy

Besides academic learning and student development (including socioemotional education), a third curricular component is designed specifically to provide room for schools to partially adapt the programme to their needs. This is part of the New Educational Model's (NME) attempt to give more weight to schools' perspectives in their own management. This initiative – called "school at the centre" (*la escuela al centro*) – aims to shift the education system's focus on the school unit. The premise is that the schools are the primary space dedicated to student learning, and therefore the focus of the impact of education policies.

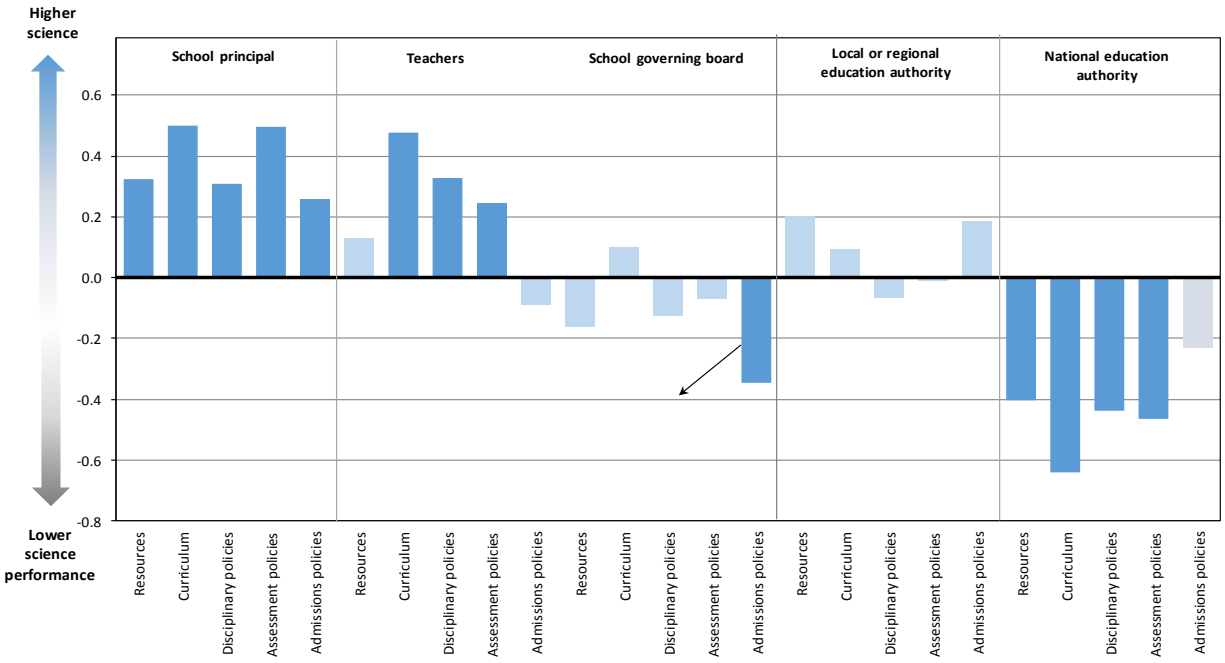
One of the areas that the initiative plans for more school involvement is in the elaboration of the curriculum. In 2015, Mexico was the third PISA country in which schools and teachers had the most limited influence over resource and curriculum management, as reported by school leaders (OECD, 2016[39]). Curricular autonomy is expected to enhance quality and increase equity of the learning content, if it is balanced with some prescription from the national level (Sinnema, 2017[40]).

With the new curriculum in Mexico, the school is invited to determine a part of its curriculum in agreement with its Technical Council (*Consejo Técnico Escolar*, CTE), its

students and its Social Participation Council (*Consejo Escolar de Participación Social en la Educación*). Five types of pedagogical activities (*ámbitos*) can be adapted in this school autonomous space: advanced academic subjects, personal and social development, specific subjects such as coding or robotics, regional content, and social impact projects.

International evidence points to a positive, but complex relationship between greater curricular autonomy and student performance (OECD, 2016[39]). PISA 2012 shows a positive correlation between 15-year-olds' mathematics performance and the level of schools' autonomy over curriculum and assessment. PISA 2015 also finds that students' performance in science increases when teachers, school principals, school governing boards and local or regional authorities have curricular responsibilities, while the same performance is lower when the curriculum is elaborated by a national education authority (see Figure 3.3 below). The correlation is not automatic in all education systems (Steinberg, 2014[41]). Overall however, schools that belong to education systems where they have the possibility to exert curricular autonomy score higher than schools in systems without curricular autonomy, independent of whether the individual school has curricular autonomy itself (Calero Martínez, 2009[42]; Ortega Estrada, 2017[43]).

Figure 3.3. Correlations between the responsibilities for school governance and science performance, PISA 2015



Note: The responsibilities for school governance are measured by the share distribution of responsibilities for school governance in (OECD, 2016[39]).
Results based on 70 education systems.
Statistically significant correlation coefficients are shown in a darker tone
Source: OECD (2016[39]), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264267510-en.

StatLink http://dx.doi.org/10.1787/888933435864

Whether curricular autonomy enhances student performance and how much autonomy should be granted to schools are determined by a country's context. Influencing factors

include the country's accountability framework, current level of students' achievement in terms of quality and equity, and the capacity of school leaders and teachers to assume this autonomy (Radinger et al., 2018[44]). As countries elaborate their curricular reforms, they must find their own balance between school autonomy that allows for flexibility of the curriculum, and central prescription that guarantees some standards of learning (Sinnema, 2017[40]). Attention and dialogue about the various influencing factors should help make the curriculum suitable for a given country at a given time (Sinnema, 2016[45]).

In the new curriculum, the number and diversity of subjects proposed for the autonomous component are determined by the CTE, based on the number of instruction hours and the schools' level of "organizational maturity" (*madurez institucional*).

- The number of hours devoted to autonomous curriculum subjects depends on the level of education and the type of school. For instance, a regular primary school could have 2.5 hours per week, while a full-day school could have up to 20 hours weekly.
- The level of organizational maturity of a school is based on an algorithm conceived by SEP, with information on the schools' staff, education outcomes, pedagogical strategy (*ruta de mejora escolar*), basic services, and an auto-evaluation by the school leader and the supervisor (SEP, 2017[22]).

The data is provided by the school director and the supervisor, or collected through the existing administrative database. The diagnosis is supposed to indicate the degree of maturity of the school as an organisation. Each school is awarded a weighted average score based on which educational authorities make a suggestion on how many areas the school should exert autonomy in, and which ones should be given priority. For instance, a school with an average score between 0 and 1.9% is in the less mature level and can only devote time for autonomous curriculum in two of the five areas. In this case, the administration recommends to prioritize the extra academic courses over the other fields (SEP, 2017[15]).

Other countries have designed and implemented partial curricular autonomy or flexibility in recent years. Box 3.3 gives the recent example of Portugal's Project for Autonomy and Curriculum Flexibility, a voluntary pilot project for schools to build their capacity to exert curricular autonomy and flexibility.

Box 3.3. Curricular autonomy in Portugal

In 2015, Portugal initiated a series of programmes and initiatives to enhance the quality of its students' learning. The "Project for Autonomy and curriculum Flexibility (PACF)" (2017-2018) builds upon this effort and provides volunteer schools with the necessary conditions to manage the curriculum while also integrating practices that promote better learning. The PACF was being implemented in more than 200 schools as a pilot project during the 2017-2018 school year. The OECD supported Portugal in drawing a few conclusions from the PACF initiative and informing the design and implementation processes of its curriculum. Importantly, Portugal invested massively in building capacity and communicating about curricular autonomy at the school level.

The pilot project enabled teachers to design and experience meaningful in-school professional development. They were also able to implement curricular and pedagogical changes that allowed them to engage with students with diverse needs and backgrounds. Because of this, the PACF has the potential to increase inclusion and equity in schools.

Students also benefitted directly from the pilot project, because they experienced innovative ways to learn, including with peers, by meeting professionals, learning outside the classroom and making their own choices about what they learnt. Some notable challenges also arose during the pilot: while teachers were asked to spend time on innovating pedagogical practices, they also had to prepare students for the national exam, two obligations which sometimes seemed to conflict with each other. The technicalities that the flexible curriculum requires (such as changing the school schedule) could be difficult to align with other schools' initiatives, and jeopardise their success. Finally, cultivating professional practices that enable teachers to exert curricular autonomy and flexibility requires time, and sustained investment in teacher autonomy and leadership skills. The OECD suggested that the Portuguese government give priority to providing training and pedagogical support to teachers, as well as professional development opportunities on a volunteer basis. Failing such commitment, it is likely that only the schools that already have an innovative minded staff would be able to get positive results out of curricular autonomy in the long run.

Source: OECD (2018[46]) *Curriculum flexibility and autonomy in Portugal: An OECD review*, https://www.oecd.org/education/2030/Curriculum-Flexibility-and-Autonomy-in-Portugal-an-OECD-Review.pdf.

From an international perspective, Mexico's intent to grant more pedagogical flexibility to schools aligns with the efforts of other education systems to improve student learning. However, some conditions are necessary for curricular autonomy or flexibility to actually enhance students' learning. The country's school accountability system and its educational staff's skills in leadership and planning seem for instance to play a crucial role in the success of curricular autonomy. If Mexican schools and staff can master these skills, partial curricular autonomy could greatly enhance both the quality and adequateness of learning, as well as equity.

The same potential and possible limitations apply for the rest of Mexico's new curriculum. Many of its features align with current good practices to prepare students to 21st-century challenges –e.g. putting student learning at the centre and insisting on the various components of learning and ways to learn rather than focusing on rote knowledge and memorization. However, the ways the curriculum is received and appropriated by teachers, students and the rest of the school community are determining factors of its effective contribution to the quality of learning.

Assessment

Curriculum changes require time, large-scale support among education stakeholders, and careful design and planning if they are to be effectively implemented in the classrooms (OECD, 2018[4]). Mexico started with a consultation process (CIDE-PIPE, 2016[47]), where a wide range of stakeholders in education were invited to engage in the development of the new curriculum in a collaborative manner. Overall, the curriculum appears to respond to 21st century needs, and to be focused on the Mexican learners and their needs. SEP made noticeable efforts to elaborate and follow a detailed implementation sequence, to include the adjustments introduced between the first curriculum proposal and the adopted version, and to develop some essential materials, in response to concerns regarding implementation.

When looking at the implementation of a policy or reform, there can be a significant gap between the reform design, which outlines policymakers' theory and expectations, and the resulting practices in schools and other education institutions. This section focuses on the relation between policy on paper and policy in practice, mainly on the main operational achievements in the implementation of the policies described above.

A curriculum built collaboratively and aligned with the Mexican vision for education

The government succeeded in carrying out a large-scale public consultation so the New Educational Model would be built with inputs from, discussions and consensus among representative stakeholders of the Mexican society. Leading this consultation was an achievement in itself, as it allowed a wide diversity of stakeholders to express their views, to forge and then to review the proposals for the new vision and education curriculum. Spearheading the process were SEP and the CIDE's PIPE (*Programa Interdisciplinario sobre Política y Prácticas Educativas del Centro de Investigación y Docencia Económicas*, Interdisciplinary Programme Education Policy and Practice of the Centre for Economic Research and Teaching), who played an important role in moderating, collecting and analysing the data. The CONAPASE also contributed to the consultation process, in line with its responsibility to review the study plans for basic education (CONAPASE,(n.d.)[48]). The consultation generated close to 300 000 contributions between 2014 and July 2016, through various mechanisms summarised in Table 3.2 below.

Table 3.2. Summary of the source of data for public consultation on the New Educational Model, 2016

	Number of recordings	Number of contributions
Discussion forums organised by SEP for each key stakeholder group	89 panels 5 plenary discussion	6 272
Discussions held during the Schools' Technical Councils (*Consejos Técnicos Escolares,* CTE)	17 715	161 530
Discussions held during upper secondary schools' Technical Councils (*Academias*)	12 793	112 454
Forums held at the state level	216	4 439
Discussions held by expert commissions and organisations	28 documents	
Online consultation platform	51 013	13 570
Total recorded contributions	**81 859**	**298 265**

Source: Adapted from Table 1 in (CIDE-PIPE, 2016[47]).

Through these meetings and consultations, a wide diversity of actors could express their views, from school communities (including students, parents, teachers, school leaders and their Technical Councils), to curriculum experts, academics, thematic committees, political entities (such as state governors, SNTE), civil society organisations, lawmakers and any individual participating in one of the open forums or through the online consultation.

The final report (CIDE-PIPE, 2016[47]) was published in July 2016, aiming to inform the final review process of the New Educational Model. The report analyses the outcomes of the whole consultation, as well as the public opinions about the consultation process itself. Overall, the latter appears very positive: contributors and participants in the discussion evoked their satisfaction that their opinion was taken into consideration. However, participants remained with some concerns in July 2016, when the documents were handed to SEP and expert reviewers:

- the lack of clarity on how the government expected to implement the new curriculum in a short period of time (the official calendar was for all schools to start implementing the curriculum in the school year 2018-2019)
- the absence of information about the budget available for this implementation
- the grey area concerning dispositions for educational staff training (CIDE-PIPE, 2016[47]).

Several of these concerns were addressed by SEP while others may remain, which we will analyse in the next sections.

The consultation process helped achieve several key elements of the curriculum reform implementation, including building a consensus around the vision, approach and content of the 2016-17 curriculum ((CIDE-PIPE, 2016[47]); own information during visit). The discussions held in parallel about the purpose of education were instrumental.

First, it was a first time in which a curriculum was built around a clear vision of the purpose of education drawn in the Map outlining the purposes of education (*Carta de los fines de educación*, 2016-17). Evidence shows that curricula are more likely to be adopted, implemented and sustained when it is coherent with a clearly defined and shared vision for education.

Second, the curriculum clearly outlines what each student needs to learn by the end of each grade in basic education. Having a clear vision of the purpose of education facilitated the definition of the graduating profiles defined (*perfil de egreso*). This, together with the focus on learning progression, resulted in a clear curricular structure from initial to lower secondary education. The work done also allowed for aligning this new structure with the *Marco Curricular Común* (Common Curriculum Framework) in use in upper secondary education. Aligning the two curricula contribute to facilitating the progression from one grade and one education level to the next, which is especially crucial at the transition between lower and upper secondary. Some adjustments are still needed to achieve greater coherence between the two curricula, however, considering the diversity of upper secondary education models (SEP, 2017[15]).

The new curriculum has been called ambitious, whether with a positive or a negative perspective (CIDE-PIPE, 2016[47]). In terms of the pedagogical approach and content, "ambition" referred to the humanistic perspective and the inclusion of socio-emotional skills as key learning outcomes in the curriculum for basic education. The OECD team was told during meetings with many stakeholders that this "ambition" in pedagogical terms was rather well received, included by school leaders and teachers. Seen in a historical perspective, the discourse about integral education is nothing new in Mexico (Sánchez Regalado, 2012[10]). It seems that the 2016-2017 curriculum helped make progress on the debate on how much academic content and socioemotional skill development make a balanced curriculum, as it reached a wide consensus on the inclusion of socioemotional learning (CIDE-PIPE, 2016[47]).

A clear sequence for curriculum implementation

A concrete plan for implementing the curriculum reform can be found within the broader New Educational Model Implementation Plan document (*Ruta de Implementación del Nuevo Modelo Educativo*) published in March 2017. The plan outlines the main steps in implementation, their timeline and goals for a number of key actions, including the study programmes for basic education and the elaboration and distribution of new educational materials (SEP, 2017[49]). Having a clear plan is structuring for any complex action, and even more so when it comes to implementing an education reform. Plans map out the various actions necessary to carry out a reform, thus bringing the policy design closer to the ground. The exercise allows for noticing potential incoherencies between these actions; it facilitates the distribution of tasks between actors and the monitoring of the overall project. It must be noted, however, that a plan is destined to evolve and adapt to the necessary changes that unavoidably happen during policy implementation: it is supposed to support the action and not to coerce it just for the sake of "sticking to the plan" (Fullan, 2015[50]).

The implementation plan had a few pilots for specific programmes. The curricular autonomy component was tested during the school year 2017-2018. The participating schools, dubbed "phase-0 schools" (*escu*elas *de fase 0*), were expected to be 1 162 in total, of which 525 primary schools (448 in general and 77 in indigenous education) and 316 lower secondary schools (79 in general education, 191 *telesecundarias* and 46 in technical education or "*técnicas*") (SEP, 2017[49]). Some report that a little under 1 000 schools actually took part in the pilot (González-Rubio, 2018[51]). Both regular schools and full-day schools were involved. The school staff was supposed to receive and process the new curriculum between May and August 2017; assess their students' interest and the resources available to determine which workshops (*clubes*) would be offered during the year; attend training for teachers and school leaders; and to use the organisational

maturity assessment tool to estimate how many options they could cover of the five alternatives for curricular autonomy. Schools were also supposed to inform parents about the purpose of the new workshops, to schedule and carry them out, to rotate the students so they could attend various workshops in the year, and to monitor each workshop throughout the process.

The OECD team visited selected phase-0 schools in the states of Puebla and Morelos, as well as in the City of Mexico. Some initial results were reported by schools on their experience with curricular autonomy in other states as well. Overall, schools we visited appeared satisfied with the pilot. The staff acknowledged that being a part of phase 0 allowed them to get to know the curriculum better and earlier, not only the curricular autonomy component. This was valuable, they thought, as all schools are expected to implement the new curriculum starting August 2018. The preliminary feedback from phase 0 points to a number of lessons learnt for the implementation of the curricular autonomy, including:

- Having adequate infrastructure such as enough space, a library, a computer room, or a covered courtyard; equipment, such as computers, projectors and internet connection; and resources in general is of major importance for the workshops to occur.
- Educational authorities both central and local should make sure the staff and parents understand the new curriculum and the purpose of the curricular autonomy component, failing which they may consider the workshops as just an extension of recreation.
- Promoting a favourable atmosphere with students who attend classes and respect each other, teachers who attend and are open to innovation, parents who are informed and ready to get involved, and a wider community with which to partner (such as universities), was pointed to as an opportunity by schools (SEP, 2018[52]).

It remains unclear whether these lessons were raised in time to inform the first steps of the national launch in August 2018. The schools visited in June still had questions about who should be in charge of conducting the extra activities, what can be achieved in regular schools, which only have half-an-hour a day reserved for these activities. Curricular autonomy offers some margins for professionals to innovate, but the benefit it can bring to students can be reduced if the options are too limited (for instance, if the schools are only allowed to set up workshops when they would like to teach regional specific content).

Curricular reforms suffer from time lags between recognition, decision-making, implementation and impact. The gap between the intent of the curriculum and learning outcome is generally too wide (OECD, 2018[4]). This gap was noticed in the implementation of the previous curriculum (2011) in Mexico. For instance, Ruiz Lopez and Armendariz Ponce conclude that, if teachers in the cities of Juarez and Chihuahua had been able to adapt some of their practices to the 2011 curriculum, they lacked sufficient paid hours to establish long-term pedagogical strategies, although the latter were essential for students to benefit fully from the curriculum (Ruiz López and Armendáriz Ponce, 2017[53]). The national implementation of the new curriculum ushers in significant challenges which national education authorities have to face together with actors at the school, local and state level.

Instructional and teaching material tailored to the new pedagogical approach

In line with the curriculum's reach for quality with equity, SEP was planning on revising or generating more than 185 million educational items for all grade from pre-school to lower secondary education, including specific materials for students with an indigenous language as their mother tongue, students with eyesight disabilities, and students in special education. These include textbooks, teacher books, literary books, audio-visual content for *telesecundarias* and other pedagogical items for the classroom. All of these were paid for out of the federal budget for education, and distributed for free to all schools for students, teachers and school leaders. The elaboration, the publication and the distribution of this material constitute a major achievement in the implementation of the curricular reform, as providing adequate educational tools is crucial to ensure that new curricula reach the classroom and contribute to student learning in an equitable manner. In 29 PISA-participating education systems, the capacity to provide instruction in socio-economically disadvantaged schools is more hindered by a lack or an inadequacy of educational materials and physical infrastructure than in more advantaged schools. On average, these lacks and inadequacies also affect rural schools more than urban ones (OECD, 2016[39]).

In order to accompany the new curriculum into the classroom, SEP and the education authorities of each federal entity set up a number of training and support mechanisms for school staff. At the federal level, SEP published a special book series (*Aprendizajes clave para la educación integral*, "Key learning outcomes for integral education") that puts the study plan into the broader context of the New Educational Model, with one volume per grade (in primary education) and one per subject (in lower secondary education). These books are primarily directed to teachers, laying out not only the content of the study plan, but also the purpose of this new content, and some pedagogical advice on the teaching and assessment methods. Materials were also developed for school leaders and supervisors to understand how to refocus their daily work practice and professional skills on enhancing their students' learning. For instance, the supervisors received methodological sheets to help them run their CTE, essential to the implementation of the curriculum, and teachers were sent guidelines to help prepare for CTE discussions.

On top of these materials, SEP also created training programmes both online and on site for teachers, school leaders and supervisors. In January 2018, a set of 19 online training courses was made available for teachers, supervisors and school leaders to take ownership of the new curriculum. Two courses, partly online and *in situ*, were designed to help school leaders and supervisors understand what the implications of the new curriculum had for their role in students' learning progression. The *in-situ* training modules were designed with and guaranteed by each federal entity. We learned that as of June 2018, 900 000 professionals had signed up for the online course, 1.2 million teachers had at least received the methodological guides from the "Key learning outcomes" collection, and 15 000 supervisors had been trained, according to SEP. Some teachers also reported having access to trainings with *in-situ* sessions, and were supposed to transfer the acquired knowledge to their colleagues.

Steering a large and complex education system, SEP and its local counterparts succeeded in elaborating a curriculum aligned with their ambitions for Mexico's students; and in operationalizing some significant parts of it including the education material, initial support and training for schools and their staff, all of which on a very tight schedule. All in all, Mexico has been quite consistent in extracting best practices from international evidence, and blending them with its national priorities for education to design its new

curriculum. The curriculum structure and content aligns indeed with a number of key principles that OECD member countries have deduced from their own experience with curricular reform design. Among these principles, Mexico has especially taken into account the following: design the curriculum around students and their learning; to include challenging topics and enable deep thinking and reflection; to focus on a relatively small number of topics in each grade and build upon their potential overlap to ensure deep learning; to sequence topics so they reflect the logic of the academic discipline on which they draw, enabling progression from basic to more advanced (OECD, 2018[4])

There can be a large gap between designing a curriculum and realizing it in the classroom, however. This is at the core of the analysis of the progress made and remaining challenges in the implementation of the curricular reform, which follows in.

Recommendations for future policy development and implementation

Overall, the design for Mexico's curriculum reform aligns to the best international practices, and to the vision the country set for its education system (see Box 3.4). The efforts to engage with stakeholders from diverse corners of the education system are commendable, and resulted in a high quality curriculum, while the education authorities proved extremely skilful at managing large-scale projects such as the production of new instructional material on a tight schedule.

The new curriculum is being implemented in a sequenced manner since August 2018, which leaves time before its effects can be observed in the classroom and especially, on student learning. While some elements in the design of the curriculum could be refined or enhanced**, education authorities in Mexico should focus their efforts on providing the support necessary to accompany students, educators and school communities as well as authorities at lower levels of government to take ownership of this new curriculum and implement it properly**.

To do so, SEP and its counterparts at the state level could consider providing support for teachers and schools in the short term and rethinking educator training for the long run. Although curricular autonomy was the only component that was piloted, educational authorities could take the time to evaluate the pilot schools' experience (those who tested it during the school year 2017-2018) and to adjust the implementation process and/or the curriculum itself based on the lessons these schools learnt. Educational authorities should provide extra support to schools in implementing the new curriculum, as they otherwise risk losing support from the educational community. To improve the existing initiatives, Mexico might consider taking action in the following areas: i) support teachers and school leaders to take ownership of the new curriculum; and ii) respect the timing and collaboration required for effective curriculum implementation.

Prioritise investment in teachers' and school leaders' capacity to implement the new curriculum

The new curriculum is facing an education workforce that apparently considers it lacks the training and support to take ownership and effectively translate the curriculum into better learning. While on visit to Mexico, the OECD team was told by some teachers, school leaders and education experts that there were some instances in which school staff was not sufficiently -prepared to start teaching the new curriculum in September 2018, given the lack of effective training. These arguments were presented especially

concerning socio-emotional skills and education (a completely brand new section of the new curriculum).

Traditionally, across countries, curricula have tended to be designed outside of schools and provided to them as self-contained products through in-service teacher training. This created major gaps between the intended curriculum and the reality of what was implemented in most countries. Alternative approaches that see curricula as a constant learning process for education staff seem to be a better fit to avoid implementation failures (Sahlberg, 2009[54]). Without proper attention, a new curriculum may not be implemented for a range of reasons: local stakeholders, including teachers may refuse it; the teaching staff may not know how to teach the new content because neither their initial nor continuous training prepared them for it; it may get dismissed in favour of the content that gets assessed through student evaluations.

Mastering a curriculum takes time, especially when the learning philosophy changes from the traditional knowledge transfer to teacher-learner collaboration (Rogan & Diane and Grayson, 2003[55]). Teachers and other school staff may require additional support, especially in the first years, to grasp the new teaching philosophy and manage the new contents (INEE, 2018[56]). Yet in Mexico, the short timeline for the new curriculum implementation made even more pressing the need for professional flexibility and support mechanisms. The support structures were not widely in place by the end of the school year 2017-2018, whereas the curriculum was supposed to start being implemented in all primary schools in August 2018. In the case of socio-emotional education, the teachers and school leaders interviewed by the OECD were convinced of the usefulness of developing non-cognitive skills in their students. However, they generally agreed that dedicating a half hour or even an hour per week was already very difficult for them to achieve. It was estimated that teachers in post did not have the time necessary to prepare and give another class, and schools cannot afford to devote one specific teacher to the task. When it was suggested that non cognitive skills could also be developed through other subjects, one pedagogical team highlighted that it was still difficult for teachers to grasp which activities develop non cognitive skills, even after reading SEP's suggestions in the matter (SEP, 2017[23]).

Mexico should provide more support for its teachers and school leaders in taking ownership of the new curriculum. In this regard, Mexican authorities might consider the following:

- **Provide additional support at school level in the short term for teachers and school leaders to master the new curriculum and the new pedagogical approaches it demands**. This includes more personalized training, feedback, and pedagogical support adapted to educators' needs and schedule and that is school and team based. Teachers need to further develop a more in-depth understanding not only of the content, but especially on how to deliver the new types of skills and competencies included in the new curricula. Following an initial strategy that has introduced the curriculum reform through IT training for teachers, technology could be further leveraged to help Mexico's teachers at a large scale during at least the first years of implementation. Individual teacher blogs and forums already exist where education professionals share some of their pedagogical practices. SEP could make a crowdsourcing platform available for teachers in all Mexico to share both their pedagogical activities and evaluation methods with the new curriculum. Although the educators who used the material and online training modules offered by SEP appreciated the effort made by the government, the

teachers and school leaders interviewed by the OECD reported the support was not enough to feel comfortable with the new curriculum. The teachers who participated in the more intense, *in-situ* trainings seemed satisfied with them, but it was not clear how they were planning on transferring their new knowledge to their colleagues.

- **Implement the Technical Support Service to Schools (*Servicio de Asistencia Técnica a la Escuela*, SATE) aligned to the curricular reform in all schools**. The delay in the implementation of SATE has delayed the opportunity for schools to have pedagogical support agents ready to assist teachers with the new curriculum. School improvement support services such as SATE can benefit teachers who feel less at ease with the new curriculum, and could spur collaboration within and across schools. Other existing support models could be expanded or transposed between states, which allow educators to collaborate, train and give each other advice across schools. For instance, Puebla's supervisor and teacher councils allow educators to discuss how to better implement new policy measures and more generally, to exchange good pedagogical practices. Bringing strong support to educators has proven essential in the implementation of new curricula in other countries. In Wales, a country that is also in the process of enacting a new curriculum, the development and implementation strategy recognises the importance of alignment across key policies and actors. The curricular reform is therefore accompanied by supporting programmes towards the professional learning of teachers and school leaders and in establishing a constructive accountability culture (Donaldson, 2015[19]). This recommendation aligns with the recommendation made in Chapter 4 about prioritising continuous professional development and SATE to enhance the skills of education professionals.
- **Rethink teacher and school leader training by building on the existing strategies for continuous professional development in the medium to long run**. Pedagogical leadership is required to drive the new curricular approach, which implies that supervisors, school leaders and teachers must have solid leadership and planning skills. Such skills develop with practice, when a professional both understands the theory and can apply it in her work. In order to respond to the pedagogical challenges posed by curricular changes, teachers and leaders need to develop these skills with professional efficiency so they can quickly master new curricula, and thus be prepared to adapt more easily to future curricular change. In Mexico, this could be achieved by making sure continuous professional development is effectively and easily available for teachers and school leaders to develop their planning, leadership and pedagogical skills. Currently, continuous professional development is the responsibility of the states, but a national professional development strategy was developed to bring coherence to professional training policies nationally. Therefore, central authorities and federal entities could reach an agreement to make the national professional development strategy more systematic and concrete in all states.

Give schools the time and agency required for effective curriculum implementation

Mexico adapted a number of curriculum design principles that were agreed upon internationally (OECD, 2018[4]). As mentioned, curricular autonomy was piloted in some

schools during the year 2017-2018. Some conclusions were drawn about the conditions for success in the participating schools, but it remains unclear what actions were taken to reinforce schools' capacity to assume this autonomy for instance. Mexico would have benefitted from taking into account the lessons learnt from the pilot for curricular autonomy, and from piloting the entire curriculum –not just curricular autonomy– before the launch at the system level. This would have yielded valuable information on the particularities of implementation of these components at each level. The risk of not having this information is that some of the difficulties with curriculum autonomy and other curricular components (such as socio-emotional skills and education) as reported by pilot schools may repeat at a greater scale without a solution.

Curriculum design and change principles from international evidence and experience refer to processes and interactions that contribute to enact the curricular content, such as teacher agency, authenticity, interrelation, flexibility and engagement (Box 3.4). While it is still too early in the implementation process to know whether some of these principles have been adopted, these can help guide the next stages of curriculum changes in Mexico as follows:

- **Allow more time for education stakeholders to test and adjust the curriculum**. Leaving more time and accompanying the implementation for several years enables school leaders and teachers to master the curriculum, and to provide feedback in case some elements do not work as planned. This in turn gives the curriculum greater chances to influence student learning. With more time, educators could for instance discuss assessment technologies and their alignment with the objectives set for key learning outcomes. Other countries undertaking large-scale curriculum reforms are making sure that teachers, school leaders and other system leaders have the time to take ownership of the new curriculum. In Finland for instance, curricular reforms are undertaken approximately every decade and are informed by a national consultation. The overall reform strategy included determining the actions required to develop the curriculum; identifying the new or enhanced skills required for teachers; and providing standards to clarify the curriculum to practitioners (Finnish National Agency for Education, 2014[16]). In Wales, the curriculum will be made available by April 2019 for public feedback. A final version will be published in January 2020, and implementation throughout Wales completed by 2022 (Welsh Government, 2015[18]).
- **Give more agency and support to school actors and sub-national authorities in adapting and implementing the curriculum**. Mexico led a nation-wide consultation, reaching a remarkable number of education stakeholders. Another way to gain in efficiency and effectiveness may be to give more agency to school actors and sub-national authorities in adapting and implementing the curriculum. This might involve reconsidering the degree of adaptability of the curriculum. Realizing curriculum in classrooms takes time, resources and collaboration. These may be difficult to provide and coordinate from a central position like SEP's, especially in a large and complex system like Mexico's. Many decentralised countries allow their lower levels of government to adapt their own version of the curriculum, although respecting national guidelines on key learning outcomes for instance. These guidelines often include the vision of the country's education and the corresponding goals for learning, philosophy, compulsory content, high learning standards, and key elements to reach them.

Finland's national curriculum is only designed as a set of guidelines that local municipalities and schools respect while adapting their curriculum according to their own individual context (Hargreaves, Halász and Pont, 2008[57]). Wales follows a different model, where school and community actors are involved in the curriculum design, and given both the responsibilities and the means to implement it in their school. The Welsh Government has recognised that successful and sustained realisation of its ambitious will require a move away from a centrally driven model of change to one that promotes local ownership and has empowered key aspects of development to the regional and local authorities and schools. The curriculum is being developed through a process of co-construction with a group of pioneer schools, but there is already wide communication on its purposes. At the school level, a particular focus on the role of school principals aims to ensure that they are well versed in the implementation of the curriculum, in the specific training required for teachers and in providing support to introduce learning and teaching that aligns to the curriculum.

Box 3.4. Curriculum design principles for change, OECD Education 2030

The Education 2030 initiative is working hand-in-hand with country members to develop design principles for changes in curricula. Some principles become more or less significant depending on the country's context and on its progress on the curriculum design. As far as designing the concepts, content and topics goes, it is worth considering:

- Student agency: the curriculum should be designed around students to motivate them and recognise their priori knowledge, skills, attitudes and values.
- Rigour: topics should be challenging and enable deep thinking and reflection.
- Focus: a relatively small number of topics should be introduced in each grade to ensure the depth and quality of students' learning. Topics may overlap in order to reinforce key concepts.
- Coherence: topics should be sequenced to reflect the logic of the academic discipline on which they draw, enabling progression from basic to more advanced concepts through stages and age levels.
- Alignment: the curriculum should be well-aligned with teaching and assessment practices, while the technologies to assess many of the desired outcomes do not yet exist, different assessment practices might be needed for different purposes. New assessment methods should be developed that value student outcomes and actions that cannot always be measured.
- Choice: students should be offered a diverse range of topic and project options, and the opportunity to suggest their own topics and projects, with the support to make well-informed choices.

As far as the processes and interactions that enact the curricular content, the following principles should guide their design:

- Teacher agency: teachers should be empowered to use their professional knowledge, skills and expertise to deliver the curriculum effectively.
- Authenticity: learners should be able to link their learning experiences to the real world and have a sense of purpose in their learning. This requires interdisciplinary and collaborative learning alongside mastery of discipline-based knowledge.
- Inter-relation: learners should be given opportunities to discover how a topic or concept can link and connect to other topics or concepts within and across disciplines, and with real life outside of school.
- Flexibility: the concept of "curriculum" should be developed from "predetermined and static" to "adaptable and dynamic". Schools and teachers should be able to update and align the curriculum to reflect evolving societal requirements as well as individual learning needs.
- Engagement: teachers, students and other relevant stakeholders should be involved early in the development of the curriculum, to ensure their ownership for implementation.

Source: OECD (2018[4]) *The future of education and skills -Education 2030*, http://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf.

Note

[1] Examples of the challenges and solutions shared by a number of other countries can be found in publications by the OECD's Education 2030 work (see OECD (2018[4]) and upcoming publications).

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Chapter 4. Supporting teachers and schools

This chapter analyses recent education reforms adopted by Mexico focused on strengthening the quality of the teaching profession and schools to enhance quality and equity in education provision. The chapter describes and reviews the teacher professional service (Servicio Profesional Docente) and the School at the Centre strategy (La Escuela al Centro) as the two main pillars to support better learning for all students in Mexican schools. It concludes with a set of insights on how these policies can be supported to reach schools and have a positive impact on student learning.

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

Introduction

Education policy and school systems need to adapt to the social and economic changes of a world continuously evolving. They need to make sure that all students are equipped with the skills, knowledge, and values to succeed in life and work regardless of their background. Recent technological changes, like digitalisation, represent both opportunities and challenges to prepare students in the school and to be life-long learners (Schleicher, 2016[1]).

Equipping students with these skills requires innovation and change in the traditional approaches towards teaching and learning. Mexico's New Educational Model and curricular approach aim to focus on developing these new skills for all students (see chapter 3). Teachers are among the main actors that shape the context for students to learn. New forms of educational provision are needed that recognise the essential role that teachers play in transforming classrooms and support them in their endeavour (Schleicher, 2018[2]).

Effective leadership at the school and system level, and school support must be in place for teachers to be able to implement this important shift in pedagogical approaches and encourage them to build a collective professional approach to improving student learning. This is to say, that improving teaching practices in the classroom (and in general, of the teaching profession) also requires developing the school as a learning community that provides the right environment for teachers in their challenging tasks.

Recognising their importance, one of the main areas of focus of the most recent education reform is improving the quality of the teaching profession in Mexico. This chapter analyses how these reforms contribute to improving quality and equity in education through better teaching in schools across Mexico.

The chapter is divided in three sections. Following this introduction, the chapter describes the main elements of the School at the Center strategy (*La Escuela al Centro)* and those related to the Teacher Professional Service (*Servicio Profesional Docente*). The second section discusses progress made in these areas, emphasising its alignment with research evidence and international relevant practices. The chapter concludes with insights on how these reform strategies can be enhanced in terms of policy design and implementation to promote effective education quality and equity at the school level and in the classroom.

Policy issues on schools and teachers

This section describes the recent changes to improve schools and the teaching profession in Mexico: The School at the Centre strategy (*La Escuela al Centro*) and the Teacher Professional Service *(Servicio Profesional Docente*, SPD).

Schools as learning communities: placing schools at the centre

School organisation and leadership are important to help support the development of a high quality teaching profession. For school systems to flourish, they require focusing not only on individuals but on *professional capital* which encompasses three kinds of capital: "*human capital (the talent of individuals); social capital (the collaborative power of the group); and decisional capital (the wisdom and expertise to make sound judgments about learners that are cultivated over many years)*" (Hargreaves and Fullan, 2013[3]). This includes recognising teachers' individual pedagogical skills and practice, and their continuous learning throughout their career as well as the articulated surroundings that

promote collaboration and decision making, towards improving student learning in their school.

As in most OECD countries, Mexico's schools have a staff structure with different figures who share pedagogical and administrative responsibilities. Each school usually has:

- one school leader, sometimes helped by a deputy director in lower secondary schools
- a number of teachers that vary depending on the number of students
- additional staff in some large primary and lower secondary schools. These staff do not have a regular teaching load and used to be in charge of any type of support functions before the creation of the Teacher Professional Service (SPD) (Santiago et al., 2012[4]).

Mexico has taken on the challenge to transform its education system, recognising the important role of the school as an enabling institution for systemic change. The Strategy *La Escuela al Centro* (The School at the Centre) was created by SEP to give coherence at the school level to Mexico's 2013 reform priorities, and reorganise school support programmes accordingly. Its objective is to reduce the bureaucratic load for schools and to guarantee that they have the skills and resources to foster active participation and collaboration within the school community, always with the purpose to enhance educational outcomes (SEP[5]). The strategy covers six lines of intervention:

First, it aims to turn schools into learning communities with less bureaucratic load for both school principals and supervisors. In this regard, the programme aims to:

- Guarantee that each school has the basic staff required (one teacher for each group and one school leader) and provide larger primary and early childhood institutions with additional staff[1] to reduce the administrative load of school leaders so they can focus more on their pedagogical leadership role.
- Support the activities undertaken by supervisors. To make them more effective in their responsibility for coordinating technical assistance for their schools, the programme seeks to develop their skills for pedagogical accompaniment and reduce the number of schools under each supervisor responsibility. It also assigns to them two ATPs and one administrative assistant (*apoyo de gestión*), or three new posts in total.

Second, the programme aims to improve the provision of direct resources for the schools:

- Schools will directly receive a budget according to the number of students it has and according to their level of educational lag.
- Resources are allocated through two programmes: *Programa de la Reforma Educativa* (Education Reform Programme, PRE) and *Escuelas de Tiempo Completo* (Full-time Schools Programme, ETC).
- Schools can decide their expenditure based on their own priorities, with the community's participation.

Third, the programme aims to reinforce support for the teaching staff in schools with the following initiatives:

- Strengthening the School Technical Councils (*Consejos Técnicos Escolares*, CTE) by introducing monthly meetings focused on improving all students learning (with a special focus on students at risk) and enhancing teaching quality through peer learning and schools exchange sessions. Teachers and their principal collaborate to establish and monitor the school's improvement route (*ruta de mejora*). The CTE follows up on academic and pedagogical issues, using monitoring indicators. For instance, the Early Alert System (*Sistema de Alerta Temprana*, SisAT) uses indicators such as attendance and reading comprehension (among others) to identify students at risk of lagging behind and dropping out. Each school can decide the day of the month and time for its CTE meeting, for more flexibility.
- Strengthening supervisors´ pedagogical function and skills by giving them training based on peer exchange and learning; and specific tools for technical accompaniment as class observation and monitoring of student learning (more than 18 000 supervisors have participated in certification programmes designed specifically for the function). The strategy also aims to reinforce the Zone Technical Councils (*Consejos Técnicos de Zona)*, where supervisors and schools principals have regular meetings, into a place of collective learning.
- Reengineering the pedagogical team that accompanies and supervises the school: the Technical Support Service to Schools (*Servicio de Asistencia Técnica a la Escuela*, SATE).
- Provide physical and virtual spaces where teachers can share pedagogical resources and experiences.

Fourth, harmonic school environments are encouraged:

- To foster equity, summer schools will be provided to offer cultural and sport activities as well as courses for academic strengthening.
- To work on developing students socio-emotional skills at schools and home to build a harmonic environment.

Fifth, the School at the Centre suggests initiatives to increase the time allocated to learning activities, including:

- The school community, exercising its own autonomy, will make its own decisions about the organisation of time in the school (following the official calendar produced by SEP) to offer the maximum learning time to students according to the context of schools and to students' needs (more information in chapter 3).
- The Full-time schooling programme (*Programa Escuela de Tiempo Completo*, PETC) will be expanded to more schools (more information on the programme in chapter 2).

Sixth, it is essential to promote social engagement, so the programme promotes:

- A more prominent role for the School Social Participatory Councils *(Consejos Escolares de Participación Social en la Educación)* which are the mechanism to facilitate cooperation among all those who are part of the school community.
- The representation and participation of parents, teachers, principal and others school stakeholders in the councils, to secure accountability and transparency (SEP, 2018[5]).

The model of *La Escuela al Centro* reflects Mexico's intention of building change and innovation capacity within schools and local governments as a key enabler to transform schools, supporting the development of a stronger teaching workforce and improving the education system (SEP[5]). Principals, teachers and other pedagogical support staff such as Mexico's new SATE (*Servicio de Asistencia Técnica a la Escuela*) are considered active agents of this transformation with the schools (Box 4.1).

Box 4.1. The Technical Support Service to Schools (SATE)

The Technical Support Service to Schools (*Servicio de Asistencia Técnica a la Escuela*, SATE), is a fundamental piece for supporting teachers and schools in Mexico. The main goals are to:

1. Improve teaching practices, based both on individual and collective experiences and knowledge, as well as on the learning needs of the students, to encourage thoughtful decision-making in the work undertaken in the classroom and the school, within a framework of equity, inclusion and recognition of diversity.
2. Support in the identification of the needs of continuous training of the teaching and management staff to be addressed by the educational authorities.
3. Strengthen the functioning and organization of schools, through the use and promotion of the school improvement route mechanism, the school leadership, the CTE and the collaborative work in the school community, within a framework of management autonomy.
4. Support teachers (as a group) in the practice of internal evaluation, making it a permanent and formative practice that strengthens and contributes to well-informed decision making process that improve of student learning.
5. Support teachers (as a group) in the interpretation and use of external evaluations, taking into account their results as inputs for the analysis of the educational work that is carried out with students in the schools and the definition of actions to improve processes and learning outcomes.
6. Deliver counselling and technical pedagogical support for schools in Basic Education aiming at the improvement of student learning, teaching and school leadership practices, and school organization and operation.

SEP emits the guidelines to organise the SATE, and state education authorities operate the service, which is coordinated by zone supervisors and implemented by ATPs. The number of schools that each SATE covers varies according to the supervision zone size. Each SATE is composed of:

- one school supervisor
- two technical pedagogic advisors (ATPs) appointed by promotion
- one ATP appointed by recognition (*reconocimiento*), in the case of pre-school and primary education. Three ATPs in the case of secondary education
- one ATP with technical operations functions supporting other schools.

Following the LGSPD, supervisors and ATPs are selected through the promotion mechanism (*promoción*). As such, they must comply with the professional standards (*perfil*) and pass the examination for promotion (*concurso de oposición para la promoción*).

Source: SEP (2018[5]) https://basica.sep.gob.mx/escuela_al_centro/ (accessed on 6 October 2018).

The Teacher Professional Service

Developing good quality teachers is essential for improving the quality of learning in any country. In order to support its teachers, the learning of students, and quality and equity in education, Mexico has been working on strengthening teaching and school leadership through comprehensive reforms in recent years that have focused on overall professional pathways (OECD, 2015[6]). TALIS data show that before 2013, almost a quarter (24%) of teachers in Mexico reported not feeling prepared to perform their work (the third largest share of teachers), compared with the TALIS 2013 average of 7%. Previous to the reform, the educational professions lacked clarity in career advancement opportunities; professional profiles were not established and professional performance was seldom appraised other than in voluntary career advancement schemes; and teachers were in need of more support in their career. An OECD report concluded (OECD, 2012[7]) the following:

- **Selection process**: Before 2008, only 13 states used licensing mechanisms when selecting teachers; the remaining 19 states allocated posts mainly upon the acquisition of a teacher's diploma. The mechanisms for the selection of teachers were not transparent and sometimes perceived as unequal, corrupt or highly politicised. The National Teaching Post Contest *(Concurso Nacional para el Otorgamiento de Plazas Docentes*) started in 2008 as the first step in a process to enhance teacher quality by making teacher selection more competitive, merit-based and transparent. By 2012, the OECD report already pointed out to some clear pending issues. First, all teaching posts were still not open to competition, and the system for allocating teachers was only based on teacher choice, with no opportunity for schools neither to express their needs nor to get staff that responded to them. Particularly, becoming a school leader did not require any specific skills, and leadership positions were not subject to any selection process other than being an experienced teacher. It was also of concern to observe that in 2008 and 2009 successively, a large number of candidates scored low on the National Teaching Post Contest; and that without improving their knowledge and skills, newly qualified teachers who scored repeatedly lower than the minimum score were still potentially eligible for a permanent post.
- **Professional development**: The programme of professional development (National Training Catalogue) was dispersed across a range of different providers and organisations. What's more, options for developing professional skills and knowledge were not diversified enough to respond to schools' or teachers' needs. School-based training opportunities existed but they were still scarce.
- **Career advancement and appraisal mechanisms**: Before 2013, some teacher career guidelines (*Carrera Magisterial*, 1993) determined the conditions under which outstanding teachers, school leaders and pedagogical support staff could be acknowledged without having to change position. This promotion mechanism was voluntary, and offered career and salary advancement opportunities based on individual teacher performance. However, there was no compulsory, standard-based appraisal mechanism in place to guarantee the quality of pedagogical practices in schools: once in position, teachers and other education professionals could stay with no further appraisal. Furthermore, there were no clear standards on what it is to be a "good" teacher or an effective school leader.

The 2013 General Law of the Teacher Professional Service (*Ley General del Servicio Profesional Docente*, LGSPD, 2013) establishes a framework for educational staff

professions. The educational staff concerned are the teachers, school leaders (or principals) and vice-principals, coordinators, supervisors, inspectors, and technical pedagogical advisors (*asesores técnico-pedagógicos,* ATP). The Teacher Professional Service (SPD), which enacts the LGSPD, sets out the bases for selection, induction, promotion, incentives and tenure possibilities, as well as for stimulating continuous professional training for educational staff[2]. Its main purpose is to guarantee the adequacy of the knowledge and capacities of teaching staff, school leaders and supervisors in basic and upper secondary education (*LGSPD,* 2013). To this extent, two processes are at the core of the SPD: professional development and appraisal, both formative and summative.

Specifically, the objectives of the SPD are to:

- Regulate the teaching activity in pre-school, primary and secondary education.
- Establish the profiles, parameters and indicators for the teacher professional service.
- Regulate the rights and obligations derived from the professional development service.
- Ensure transparency and accountability in the professional development service.

The Teacher Professional Service aims to bring into a coherent whole several elements that reward good performance and improvement, and provide incentives for both schools and individuals (OECD, 2018[8]). In this sense, the SPD:

1. Defines the profiles, parameters and indicators for teachers (*Perfil, parámetros e indicadores para docentes y técnicos docentes*), for the leadership roles (principals, vice-principals, coordinators), and for supervisors, and pedagogical profiles for ATPs (*Perfil, parámetros e indicadores para personal con funciones de dirección, de supervisión y de asesoría técnica pedagógica*).
2. Establishes the framework for a career perspective for the teaching profession with clear criteria for entry, permanence, promotion and recognition in transparent conditions:

- **Entry and selection process**: the new entry mechanism aims to incorporate suitable candidates to the educational workforce through a selection process. It consists in passing the three steps of the entrance examination (*Concurso de oposición para el ingreso*); going through probation phases that include training and support, then mentoring for two years; being initially appointed for six months (*nombramiento*) and then reaching final appointment (*nombramiento definitivo*). After the first year, a diagnostic appraisal (*evaluación diagnóstica*) takes place and mentoring and support are aligned to help new teachers improve their practice. A second appraisal focused on performance (*evaluación del desempeño docente*) is compulsory during the second year, which determines whether the candidate can continue his career as a teacher. As of 2016, candidates can come from higher education institutions other than the *Normales* (Teachers' Colleges), which may help to diversify and improve the offer of possible future teachers, although care should be taken to ensure that candidates from all qualifying institutions acquire the necessary set of skills and knowledge required to enter the profession.
- **Permanence in the profession**: the teacher performance appraisal mechanism for in-service teachers (*evaluación de desempeño de los docentes en servicio*) defines

the conditions under which in-service teachers can retain their position in front of the classroom. The performance appraisal model has evolved, and since 2017 it consists of three components: a report on the fulfilment of the professional responsibilities; a teaching project[3] that includes pedagogical planning, intervention and reflection on practice (60%); and a sit-in exam on pedagogical knowledge, curriculum and disciplines, and legal and administrative knowledge related to the profession (40%).

- **Promotion and trajectory in the profession** (*promoción en el servico y trayectoria profesional*): the mechanism establishes the trajectory to become a school leader, ATP or supervisor in basic education; and to become a school leader or supervisor in secondary education (e*ducación media superior,* EMS). These trajectories include two years of induction. Promotion is undertaken following annual *concursos.* As part of the promotion mechanisms, there is also a system of rewards within the same position (*programa de promoción en la función*, LGSDP, Art.4, fraction 8) or voluntary lateral moves (to develop other competencies) aiming to reward those education staff who stood out in both their performance appraisal (*evaluación del desempeño*) and in an additional appraisal for the promotion process (*evaluación adicional).*

3. Re-designs the mentoring mechanism (*tutoría*) for new teachers during their first two years of service. There are three types of mentoring in order to ensure that it reaches all educational contexts: mentoring in-situ, online mentoring and rural mentoring. Mentoring aims to:

- Strengthen the competencies of the teaching and technical teaching staff entering the profession, and support their insertion in the educational workforce and their permanence in the professional teaching service.
- Contribute to the improvement of teachers' professional practice.

4. Establishes the SATE as the core mechanism to provide support for in-service teachers and educational staff at the school level (see Box 4.1).

5. Re-designs the framework for the professionalization of the teaching career (*Marco de la profesionalizacion de la docencia*) within an annual National Continuous Training Strategy (*Sistema Nacional de Formación Continua*). The strategy considers three main lines:

- Training to elaborate the educational projects required for the evaluation of promotion and permanence of the professional teaching service.
- Training on the service provided for education staff who participates in the mechanisms of evaluation, tutoring and SATE.
- Continuous training in priority themes of the new educational model, and transversal themes that are relevant for basic education.

The LGSPD establishes that SEP is responsible for producing the general guidelines of the SPD. The SEP also collaborates with the state education authorities and with the INEE to elaborate and supervise the professional appraisal processes. The newly created National Coordination of the Teacher Professional Service (*Coordinación Nacional del Servicio Profesional Docente*, CNSPD) generates the policies, programmes and actions necessary to guarantee continuous development, training and capacity building to education professionals. The CNSPD has a deconcentrated organisation, with sub-

national branches at state level. It is in charge of defining the SPD's profiles, parameters and indicators (*perfiles, parámetros e indicadores,* PPIs) and the steps, aspects, methods and instruments of professional appraisal (*etapas, aspectos, métodos y instrumentos*, EAMIs). The CNSPD also designs and carries out the appraisals; it qualifies and publishes their results; and operates the SATE and the mentorship mechanisms.

State education authorities (*Autoridades Educativas Locales,* AEL) are mainly in charge of providing professional development programmes that are "free, adequate, relevant and congruent" (LGSPD Article 8), and of participating in the design and implementation of professional appraisal processes. The INEE produces guidelines with quality criteria for the professional development offered by education authorities; it validates the appraisal mechanisms and oversees the processes when appraising teachers.

Assessment

Teachers are among the most important in-school factors for student learning so they are essential to achieve the goals of quality and equity in education contained in the reform and expressed in Mexico's Constitution. Teachers do not work in a vacuum however: building a quality teaching workforce requires efforts on numerous levels. In this section we offer insights from international evidence and practice surrounding three types of policy levers for ensuring a high quality teaching profession: school mechanisms that can support and foster a quality teaching profession, effective leadership that can create an environment in which quality teaching can take place, and teacher policies aimed at improving the quality of the workforce (OECD, 2014[9]).

Supporting schools as learning communities

Ensuring a full occupational structure in each school

The first requirement that must be complied with if schools are to provide high-quality education is to ensure that they have enough of the adequate staff for each pedagogical and administrative task. The SEP is currently coordinating with the other education authorities to revise and enhance the occupational structures (*estructuras ocupacionales*) of schools in basic education. The initiative consists in identifying an occupational structure of reference, which defines the basic number of teaching and administrative staff necessary for each type of educational service. This basic structure could then be adapted by education authorities depending on the context in which they provide the various forms of education they are responsible for. As of September 2018, the state education authorities were in the process of presenting their suggestions for the structure of reference to the national authorities. Once all information has been collected, the plan is for relevant authorities to formalize the structure of reference, and to determine the occupational structures for each state based on this referential, taking into account each entity's particular needs and resources.

Promoting collaborative professional practice among teachers and across schools

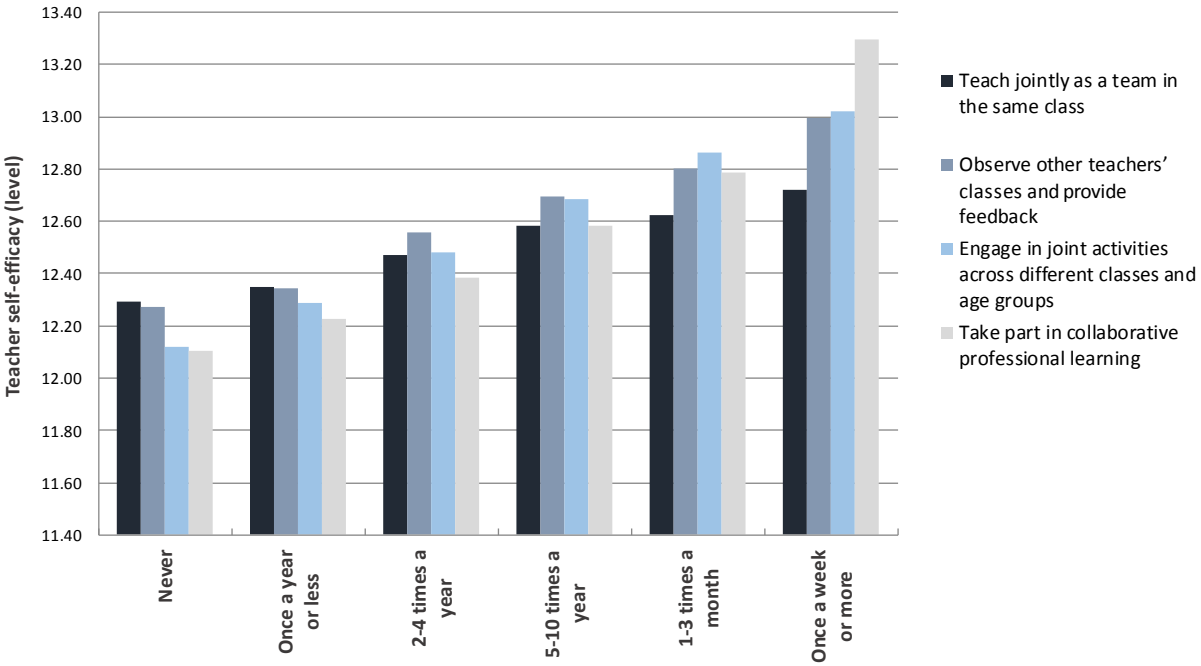
Mexico is in the process of strengthening professional collaboration in its schools. In order to place students at the centre, and help improve the teaching profession, schools need to collaborate more systematically; schools' members need to be open to changes, open to the community and to the world around them, capable of introducing innovations with agility; and authorities need to support schools to create places where everyone is

continuously learning. Perhaps most important, teachers need to be open and willing to engage with their colleagues, their administration and their students (Schleicher, 2018[2]).

International evidence suggests that although both human capital and social capital in schools are important, social capital can be more influential as a lead school improvement strategy (Hargreaves and Fullan, 2013[3]). This points to the importance of focusing on facilitating collaborative working and learning environments to promote teacher professionalization and school improvement. Fostering collaborative practices in schools, whether these be through collaborative professional development activities, systems of peer feedback or collaborative teaching activities, are highly beneficial to teacher self-efficacy and job satisfaction. Analyses show that teachers who report engaging more in collaborative activities also tend to show higher levels of job satisfaction as well as self-efficacy (Figure 4.1). Professional teaching collaboration include teaching jointly in the same class, observing and providing feedback on other teachers' classes, engaging in joint activities across different classes and age groups and taking part in collaborative professional learning. Collaborative forms of professional development are especially strongly related to teacher's job satisfaction and self-efficacy. Further, TALIS shows that collaborative learning is highly associated with effective practice in the classroom (Opfer, 2016[10]) (Barrera-Pedemonte, 2016[11]). Formal collaborative learning flourishes in schools with the appropriate school mechanisms and supportive leadership. It generally entails teachers meeting regularly to share responsibility for their students' success at school (Chong and Kong, 2012[12]).

Figure 4.1. Teachers' self-efficacy and professional collaboration, 2013

Teachers' self-efficacy level according to the frequency of teacher professional collaboration for the following items for lower secondary education



Source: OECD (2014[9]), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, TALIS, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264196261-en.

StatLink http://dx.doi.org/10.1787/888933042295

Mexico has undertaken its own strategy to build the model of schools as learning communities at the centre of the education system, known as *La Escuela al Centro.* The mechanisms it promotes can form the basis on which to build more robust and frequent teacher collaboration, and to establish a learning culture through professional learning communities, peer feedback and professional learning plans. *La Escuela al Centro* strategy and the structure of the SPD signal a shift for Mexico towards more systematic and formal professional collaboration. The School Technical Councils (CTE, *Consejo Técnico Escolar*) provides a valuable space for exchanges on professional practice among the pedagogical team (i.e. the school leader, the teachers and potentially support agents such as the ATPs).

Within the new framework, schools are heavily encouraged to hold at least one session per month with their CTE. Furthermore, a new strategy entitled "Learning between schools" (*"aprendizaje entre escuelas*") was suggested for CTEs to adopt: since 2016, teachers from 3 or 4 schools have met twice during the school year to exchange on their practices, experiences, materials, pedagogical strategies. In 2017, teachers shared a class (live or recorded) to be commented by their peers. The SEP reports that close to 90% of schools took part in this strategy (information communicated by the SEP directly to the OECD team). The establishment of mentorship programmes also aims to stir collaboration between experienced teachers and teachers initiating their careers. The SATE will be carried out by supervisors and technical pedagogical advisors (*Asesores Técnico-pedagógicos*, ATP), in the hope to stimulate exchanges about pedagogical practice between schools' teaching staff and the supervision level.

Historically, Mexico's school actors have engaged in rather informal collaboration, when they did (OECD, 2010[13]). According to the experience of the OECD team visiting Mexico, one of the unexpected effects of the instauration of teachers appraisal mechanisms was the emerging of informal collaboration practices among teachers, mainly with the purpose of helping each other to prepare for their evaluations. The team also observed that teachers exchanged practices on individual blogs following the publication of the new curriculum.

Other efforts to systematise professional collaboration exist in Mexico, but remain sparse. Some states such as Puebla promoted Supervisor Councils and Teacher Councils which can be found working closely with the SEP, giving advice on how to better implement educational initiatives. The cases of Learning Communities (*Comunidades de Aprendizaje*) encouraged by the National Council for Educational Development (*Consejo Nacional de Fomento Educativo*, CONAFE) could be further studied and fostered beyond rural schools.

However, peer collaboration, time scheduled for collaboration in schools and learning communities are not yet extensively present, partly for lack of time and resources, and partly due to the individualistic view of the teaching profession that still prevails. It is not only a matter of establishing collaborative spaces or mechanisms by norm. A culture of collaboration and a vision of the teaching profession as intrinsically tied to the school and learning communities has to be built, for not all forms of social capital in education have proved productive for improving student learning or the quality of teaching.

Collaborative learning tends to be active and interactive and often involves the participation in a professional learning community (PLCs). This enables to engage teachers socially, giving them opportunities to share ideas and seek solutions to problems together, to learn with and from one another (Guskey, 1995[14]) (Lieberman and Pointer Mace, 2008[15]). Many countries have incorporated PLCs as part of their professional

learning programmes, which can be implemented at a school level, district level, regional level, national level or even at an international level. PLCs tend to be most successful when they are guided by a shared vision and implemented in a context of trust, accountability and willingness / ability to take risks (Hunzicker, 2011[16]). This last point is a key factor in the success of peer feedback as an important part of collaborative professional development relies on teachers sharing their practice openly with colleagues, and their willingness to provide and receive critical and constructive feedback (Lieberman & Pointer Mace, 2005).

A number of Asian countries incorporate this as everyday practice in their school, with more experienced teachers sharing their knowledge and skills with less experienced peers (see Box 4.2). For instance, in Japan, there has been a long tradition of collaborative peer learning through "lesson studies" throughout teachers' careers. Because they do not want to let the group down, teachers work hard to develop superior lesson plans, to teach them well, and to provide sound and useful critiques when it is their colleague's turn to demonstrate their lesson plans to them.

Box 4.2. Collaboration and peer learning in Asian systems

Lesson study in Japan

Throughout their career, Japanese teachers are required to perfect their teaching methods through interaction with other teachers. Experienced teachers assume responsibility for advising and guiding their young colleagues. Head teachers (school leaders) organise meetings to discuss teaching techniques. Meetings at each school are supplemented by informal district-wide study groups. Teachers work together to design lesson plans. After they finish a plan, one teacher from the group teaches the lesson to her students while the other teachers look on. Afterward, the group meets again to evaluate the teachers' performance and to make suggestions for improvement. Teachers from other schools are invited to visit the school and observe the lessons being taught. The visitors rate the lessons, and the teacher with the best lesson is declared the winner.

Demonstrating lessons and master classes in Shanghai and Singapore

The concept of "Master classes" or "demonstration lessons" has become more widely used in Asian contexts, including in Shanghai and Singapore. In this model, an accomplished or very experienced teacher gives lessons for multiple teachers (either within the same school or across multiple schools within the system) to observe. In Shanghai, Master teachers are drawn from the top 1% of teachers in their subject field. They typically provide master classes at the district level three times per term.

A variation of this model, the "cascading model of teacher mentoring", is also used in these systems to develop teacher capacity in a subject field across the system. Master teachers essentially mentor the next level of senior teachers using the process above, who in turn mentor other teachers in their own school.

Finally, in Singapore, the Outstanding-Educator-in-Residence (OEIR) programme, organised by the Academy of Singapore Teachers, takes the Master classes one step further (and more global) by inviting outstanding overseas teachers to conduct master classes.

Source: Jensen et al. (2016[17]) "Beyond PD: Teacher Professional Learning in High-Performing Systems", The National Center on Education and the Economy, Washington, D.C.
Stevenson and Stigler, 1992, as cited in OECD (2010[13]).

Successful education systems like Finland, Japan, Korea and Singapore devote considerable time to school level activities related to instructional improvement, including for collaborative learning. There should be time in a teacher's day designated for collaboration with peers, discussing instructional practice, group preparation and professional development (Darling, Hammond and Rothman 2011, Darling and Hammond 2010). In Japan, 40% of teachers' working time is devoted to these kinds of activities. Developing professional development at the school-level is particularly important in Mexico because many schools in rural areas are quite isolated and national capacity to help meet their teachers' needs is quite limited.

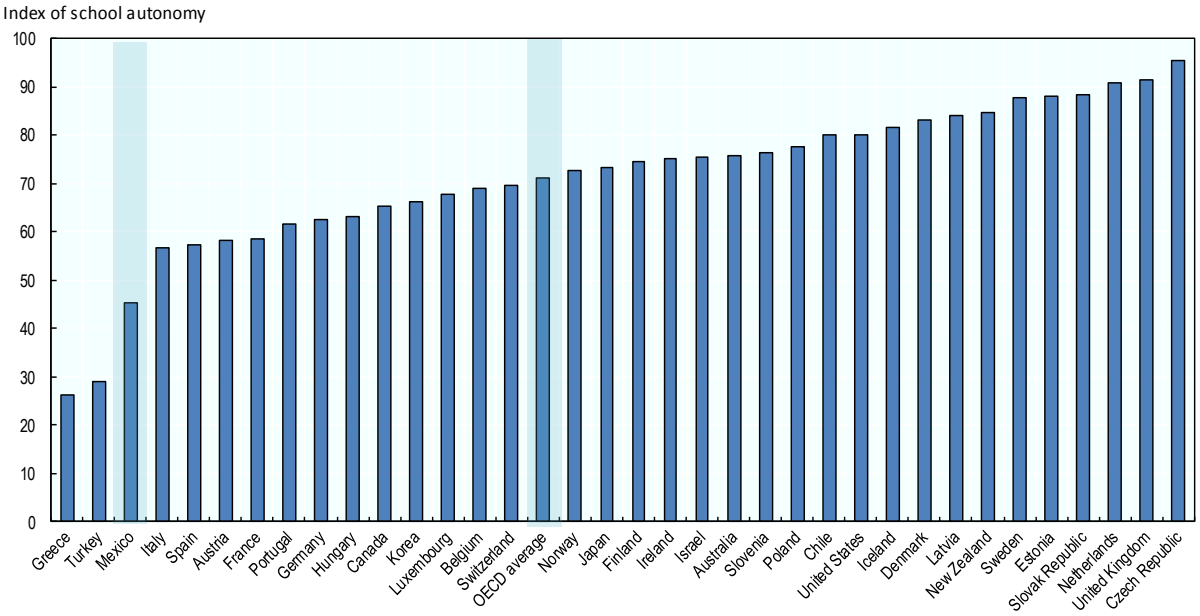
Effective leadership and management

Another important aspect of the reform in Mexico is the development and consolidation of leadership capacity at school level. Many countries have seen a shift from bureaucratic commanding and controlling school systems to school systems in which schools themselves have more control over resource uses and work planning. This encourages school leaders and teachers to work together to identify good practices, adapt or create them according to their students' needs, and to build a learning community to support each other in improving the quality of their work.

Leadership opportunities at school level

Historically, schools have had very little autonomy in Mexico: in 2015, Mexico scored the third lowest index of school autonomy among OECD countries, which means that school personnel had responsibilities for less than half the tasks related to resource allocation and decisions about curriculum and instructional assessment (OECD, 2016[18]). Figure 4.2 shows the index of school autonomy across OECD countries in 2015. As noted in an OECD review carried out in 2010, the organisation and structure of education in Mexico makes it difficult for the system to promote large-scale school autonomy (OECD, 2010[13]). **These challenges must be acknowledged, and this report does not suggest schools in Mexico should be left to operate by themselves. By "school autonomy", we refer to the capacity for school staff to share some responsibilities in a set of decisions, by comparison with a situation where authorities at higher level make all decisions.** This engagement of school staff and local stakeholders in some decisions is necessary to the success of education policies in the complexity of 21st-century education systems (Viennet and Pont, 2017[19]). It is therefore crucial that education authorities help school communities build their capacity to make decisions to enhance student learning and improve education.

Figure 4.2. Index of school autonomy across OECD countries, PISA 2015



Note: The index of school autonomy is the percentage of tasks for which the principal, the teachers or the school governing board have considerable responsibility, including allocating resources to schools and responsibility for the curriculum and instructional assessment within the school. Results based on school principals' reports.
Source: OECD (2016[18]), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264267510-en.

StatLink http://dx.doi.org/10.1787/888933436498

The School at the Centre strategy aims both to reinforce schools' autonomy and to reduce the administrative load on system leaders (school leaders and supervisors) to allow them to exert more pedagogical leadership. This effort toward greater autonomy at the school level is in line with the policies that other countries have established or are still exploring. Examples include the Finnish and the Dutch systems, both long-time models in terms of school autonomy (although at different levels of autonomy), and countries such as Chile and the United States (OECD, 2016[18]). There is evidence that some autonomy in curricular matters has a positive impact on students' performance according to PISA results (see the chapter on curriculum in this report). A precision to bring is that benefits are usually conditional on having effective accountability systems in place and training school leaders in leadership and management (Hanushek, Link and Woessmann, 2013[20]).

The School at the Centre implies an effort by education authorities to provide the resources and capacities and to help grow a culture of autonomy, which schools and their leaders need to fulfil their tasks. Two main programmes allocate additional resources to strengthen schools: Education Reform Programme (*Programa de la Reforma Educativa*, PRE) and Full-time schooling programme (*Escuelas de Tiempo Completo*). After financing infrastructure investment, the PRE shifted in 2017 to focus resources on increasing schools' resource autonomy (see Chapter 2 for more details). These two programmes aim to provide 75 000 schools with a specific budget calculated according to the schools' attendance. This first step is encouraging, and it will require some close monitoring and follow-up with schools in order to make sure school communities manage

and spend these extra resources in ways that enhance the quality of school processes: in the end, the ultimate goal of these investments is to enhance student learning.

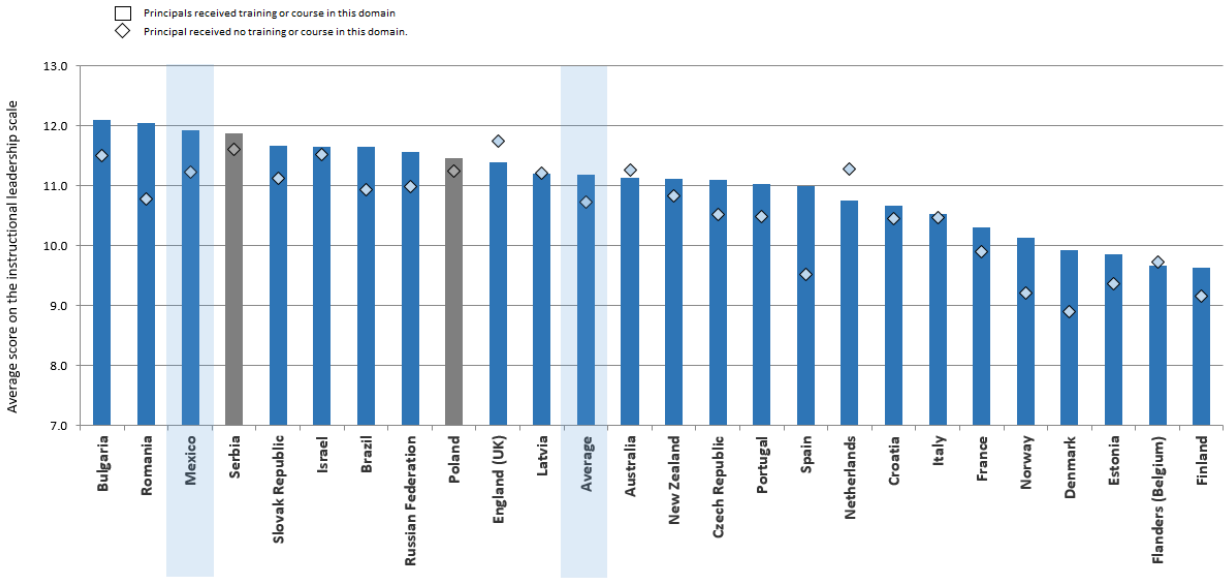
Granting direct funds to schools requires key stakeholders to develop their skills and responsibilities for school spending. These stakeholders include school leaders, teachers and the CTEs; the supervision team (*supervision escolar*); participants in the Social Participation Councils (*Consejos Escolares de Participación Social en la Educación*, CEPSE) such as parent representatives and community spokespersons; and state education authorities (OECD, 2017[21]). To this effect, the School at the Centre initiative is closely linked with the strategies for continuous professional development of education staff (see the section on system leaders and support actors), and with programmes such as the SATE to strengthen advice and support at school level.

System leaders and support actors

School leaders, supervisors and ATPs are essential for improving the quality of teaching and learning environments in schools. School leaders are the glue, pollinators, enhancers and champions of each learning community: they play a key role in improving school outcomes by influencing the motivations and capacities of teachers, as well as the environment and climate within which they work. Effective school leadership is essential to improve the efficiency and equity of schooling (Pont, Nusche and Moorman, 2008[22]).

The General Law of the Professional Teacher Service (2013) (*Servicio Profesional Docente*) (INEE, 2015b[23]) aims to professionalise school leaders by introducing a selection and recruitment process, as well as an induction process during the first two years of practice. Public selection processes (*concursos*) are now organised, with candidates expected to have a minimum of two years' teaching experience before being definitively appointed. These processes are based on specific profiles determined jointly by the INEE and national and state authorities. Under this law, school leaders will be confirmed in their post only after positive appraisal. Upper secondary principals have the option to renew their appointment, or to return to the status of teacher if they are not reconfirmed in their post. Before the reform, over half of school leaders were in fact teachers acting as school principals, without any formalised role (OECD, 2018[8]). The School at the Centre strategy has brought together several efforts to develop principals' skills and to give them tools for pedagogical advice to their teachers. Since 2014-2015, SEP started a controlled experiment with World Bank. In the treatment schools, principals are receiving special training in leadership, class observation and student´s learning monitoring tools, and certification on school management; the intervention also considers families training on parenting skills. Principals management skills and students achievement are the outcome variables. Final results of the impact evaluation will be presented in November 2018. As TALIS data have shown (see Figure 4.2), school leaders who have received training in pedagogical leadership (practices school leaders use in relation to the improvement of teaching and learning) are more likely to engage in pedagogical leadership in their school (OECD, 2016[24]) In turn, pedagogical leadership is a strong predictor of how teachers collaborate and engage in a reflective dialogue about their practice.

Figure 4.3. Principals' training in instructional leadership, lower secondary education, 2013



Source: OECD (2016[24]), *School Leadership for Learning: Insights from TALIS 2013*, TALIS, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258341-en.

StatLink http://dx.doi.org/10.1787/888933369605

The School at the Centre strategy also aims to lighten the administrative load that falls onto school leaders, so they can dedicate more time to exercise pedagogical leadership in their schools, and offer guidance to their teachers. In a previous review, the OECD noted that school leaders still tended to see themselves as administrators rather than pedagogical leaders (OECD, 2010[13]). The new policies thus aim to clarify the responsibilities of critical school figures (especially the teacher, school leader, supervisor and the technical pedagogical advisors), and to strengthen the role of school supervision as a primary source of advice and support to school leaders. In this regard, the SATE (see Box 4.1) is a key ally for school leaders and their schools, since the service is expected to bring both administrative and pedagogical advice. A school improvement service like the SATE holds great potential and should be pursued, given its central role in the support to teachers and system leaders (i.e. principals and supervisors).

School leaders, through the work they do and the relationships they establish with teachers, staff and students, help to create a positive, mutually supportive climate. In Chile, the main task of school principals is the implementation and management of the school educational project, which implies that all school principals should at least develop, monitor and evaluate the goals and objectives of the school, the study plans and curricula and strategies for their implementation; organise and guide the technical-pedagogical work and professional development of teachers; and ensure that parents and guardians receive regular information on the operation of the school and the progress of their children. (Box 4.3).

Box 4.3. Strengthening the role of the principal by developing school leadership standards in Chile

In a shift from the traditionally administrative and managerial role of school leaders, Chile has developed standards to emphasise school leaders' role as pedagogical leaders. Different sets of school leadership standards provide guidance for school leaders about the role they should fulfil. The first one, the Good School Leadership Framework (Marco para la Buena Dirección), published by the Ministry of Education in 2005, was later updated with a new set of standards in 2015 (Marco para la Buena Dirección y el Liderazgo Escolar).

These new school leadership standards have been designed to support school leaders in their self-reflection, self-evaluation and professional development; to establish a common language around school leadership that facilitates reflection of school leadership within the school community; to guide the initial preparation and professional development of school leaders; to provide a reference for the recruitment and evaluation of school leaders; to facilitate the identification of effective school leaders and to spread good practices; and to promote shared expectations about school leadership and provide a reference for professional learning.

Overall, school leadership standards are not prescriptive, and represent a common reference that is adapted to local contexts. To reflect the contextual nature of school leadership, the standards distinguish conceptually between "practices" and "competencies" that form the basis of successful school leadership. On one hand, practices entail five dimensions: i) constructing and implementing a shared strategic vision; ii) developing professional competencies; iii) leading processes of teaching and learning; iv) managing the school climate and the participation of the school community; and v) developing and managing the school. On the other hand, personal resources comprise three areas: i) ethical values; ii) behavioural and technical competencies; and iii) professional knowledge.

Source: Santiago et al. (2017[25]), *OECD Reviews of School Resources: Chile 2017*, OECD Reviews of School Resources, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264285637-en.

In Ontario, Canada, a leadership organisation supports school leaders in part by providing a research-based leadership framework for pedagogical leadership (see Box 4.4, OECD, 2011) and this is an example Mexico can look at to reflect on and enrich its own mechanisms.

Another key leadership figure at school and sub-national levels is the school supervisor. Each state organises its system of supervision of schools, structured according to geographical areas at two levels: sectors (*sectores*) and zones (*zonas*). Sectors consist of a number of zones and each zone comprises a number of schools. Supervisors take responsibility for each zone (and the respective schools). Supervisors function as the direct link between schools and education authorities (Santiago et al., 2012[4]). There are 14 197 school supervisors (*supervisores escolares*, which can also be translated to "school inspectors") in Mexico, who are responsible to attend to and supervise between 6 and 50 schools each (as of 2018, data provided by the SEP).

Supervisors are in charge of guaranteeing that their schools provide quality education to all the students. Supervisors' main function is to provide advice and support according to

the needs expressed to the school leaders and teachers in their school zone. They function as the institutional link between the various levels of educational governance. The figure of the supervisor is expected both to provide advice and support, and to promote participative management in schools. Supervisors are also expected to back bottom-up initiatives from teacher and school leader groups, especially when these initiatives are aimed at making sure that all students can reach at least the expected learning outcomes in their grades. A previous OECD study found that supervisors tended to focus on their role as administrative inspectors, while providing rudimentary pedagogical advice (Santiago et al., 2012[4]).

Because of supervisors' strategic position, they are in a unique place to help school actors improve their practice. Efforts have been made with the recent policies to strengthen their role, especially in pedagogical matters. In 2014, the SEP committed to:

- Significantly reduce the administrative load on school supervisors and strengthen their functions of pedagogical advice and orientation.
- Establish support teams for school supervision to continuously develop and improve schools.

Since then, the SEP has implemented a series of actions to strengthen supervisors' professional skillset and to facilitate their access to schools and classrooms so they can contribute more directly to improving learning. One flagship initiative is the creation of a certification programme specifically designed for supervisors. Examples of training courses for supervisors include class observation methods and basic elements of student assessment, which is expected to strengthen supervisors' expertise on pedagogical practices and issues in the classroom. As of September 2018, 12 414 supervisors had been accredited, or a completion rate of 78% (data provided by the SEP). When interviewed, SEP officials acknowledged that there was still room for progress to strengthen school supervision.

Box 4.4. Developing education leadership in Ontario, Canada

The Institute for Educational Leadership (IEL) in Ontario is a virtual organisation made up of a partnership of representatives from Ontario's principals' and district officers' associations, councils of school district directors, and the Ministry of Education. Its purpose is "to further develop education leadership so as to improve the level of student achievement in Ontario's publicly funded education system. One of IEL's five practices and competencies within its research-based leadership framework for school principals and deputy principals is "leading the instructional program", described as: "The principal sets high expectations for learning outcomes and monitors and evaluates the effectiveness of instruction. The principal manages the school organisation effectively so that everyone can focus on teaching and learning." Among a number of practices outlined to achieve this are: ensuring a consistent and continuous school-wide focus on student achievement; using data to monitor progress; and developing professional learning communities in collaborative cultures. Associated skills include that the school principal is able to access, analyse, and interpret data, and initiate and support an enquiry-based approach to improvement in teaching and learning. Related knowledge includes knowledge of tools for data collection and analysis, school self-evaluation, strategies for developing effective teachers and project management for planning and implementing change.

Source: Ontario Institute for Educational Leadership website (2018[26]), http://www.education-leadership-ontario.ca/en/resources/ontario-leadership-framework-olf (accessed 10 July 2018).

Efforts were made as well to reform and formalise the role of the support figures for school supervisors. Historically, school supervision units (*supervisiones escolares*) counted with a small number of staff aimed to provide administrative and pedagogical expertise (technical administrative advisors –*asesores técnico-administrativo*, ATA; and technical pedagogical advisors –*asesores técnico-pedagógico*, ATP).

The technical pedagogical advisor, (*Asesor Técnico Pedagógico*, ATP) became a central figure to guarantee that the reforms contribute to school and teacher improvement in Mexico. "ATP" used to refer to any individual with teacher status, but who was not in front of a class, without legal existence and with no specific professional guidelines (OECD, 2010[13]). Within the new SPD framework, the ATP is an education professional whose main function is to provide expert pedagogical advice to teachers, school leaders and supervisors. It is thus a figure of support, central to The School at the Centre programme and more generally, to the initiatives to improve the quality of teaching. ATPs will also be subject to selection and recruitment processes and can participate in the different promotion mechanisms (OECD, 2018[8]).

ATPs are a fundamental actor of the SATE and a key partner for school supervisors. ATPs participate in: planning, developing and following up on SATE activities in their zone; designing the service's support strategy, giving priority to the schools most in need; visiting schools periodically to bring advice and support to teachers and school leaders; observing the work done with students in the classes; and creating networks and learning communities between education professionals and between schools in their zone (SEP, 2017[27]). The SATE also counts with a figure for administrative support, provided by an experienced school leader to her peers in the supervision's zone. Implementing a service like the SATE can take time however, especially because education authorities needed to fill 33 000 ATP positions for the SATE to be operational in every supervision area. At the

time this report was written however, only a third of these were allocated (data communicated by the SEP to the OECD team).

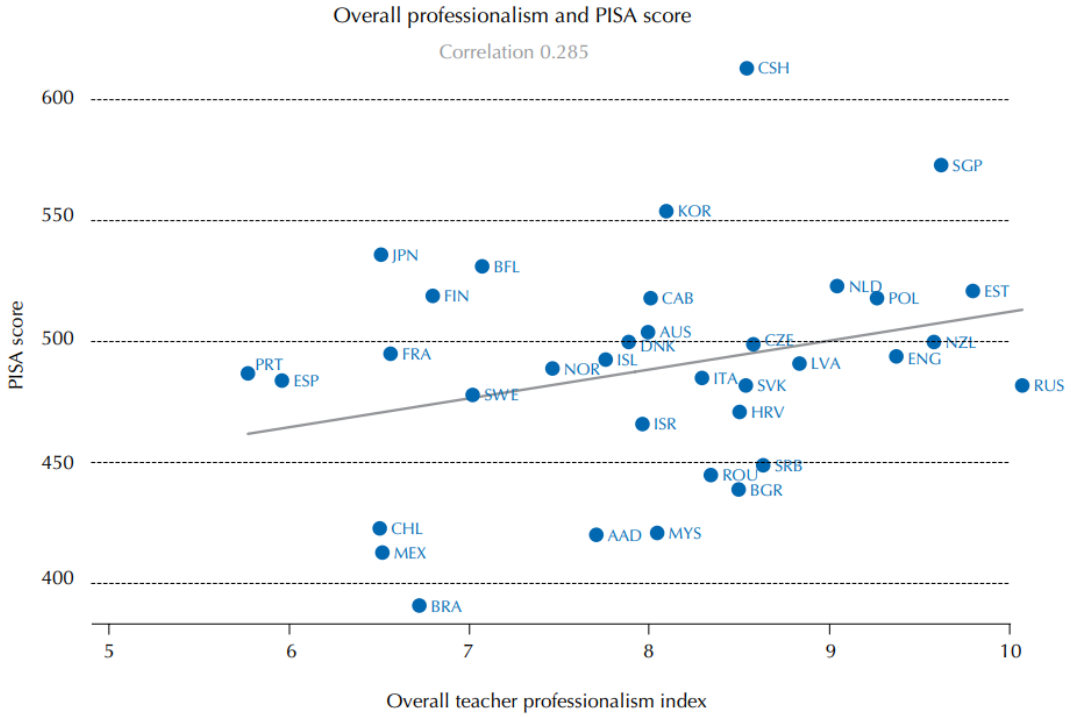
Other countries have set up similar advice and support services to surround schools and their leaders with qualified professional in both pedagogical and administrative manners. For instance, England has opened School Improvement Partner (SIP) positions to cover several schools in an area, with 5 days of the SIP's time allocated to each school per year (Pont, Nusche and Moorman, 2008[22]).

Developing the teaching profession

Efforts to strengthen teacher professionalism

Teachers should have a deep understanding of what they teach and about their students. This requires specific professional knowledge as well as knowledge about professional practice that enables teachers to create effective learning environments and foster adequate learning outcomes. By seeking to professionalise the educational workforce with a career perspective in Mexico, the SPD aligns with evidence that highlights how career progression opportunities can enhance teacher quality. This includes the preparation, selection, recruitment, evaluation, professional training, support and incentives for teachers to develop as professionals (OECD, 2005[28]). The SPD formalises the progression paths for the various professions available to the education workforce, signalling educational careers as coherent professional careers. TALIS analyses have shown a positive relationship between teacher professionalism and student achievement as measured by PISA results (see Figure 4.4 below), suggesting the importance of investing in policies to promote teacher professionalism (OECD, 2016[29]).

Figure 4.4. PISA scores and overall teacher professionalism (ISCED 2), 2013



Note: The index of overall teacher professionalism relies on three domains: knowledge, autonomy, and peer networks. Each of the domains is scaled from 0 to 5.0, with 5.0 representing a theoretical maximum where all practices within the domain are observed for a given teacher. The overall index is the sum of the scales between the three domains.
Source: OECD (2016[29]), *Supporting Teacher Professionalism: Insights from TALIS 2013*, TALIS, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264248601-en.

Teachers today are increasingly expected to perform tasks that fall beyond their job description (Schleicher, 2018[2]). This means that they are counted on to provide students with both cognitive skills and non-cognitive skills, such as self-confidence and collaborative skills. In addition, teachers are expected to be aware and respond to students' individual needs; and to work with other teachers and parents to ensure the proper development of their students (Schleicher, 2018[2]). A key aspect of high performing school systems world-wide is a clear focus on continuously supporting the professional learning of its teachers (Schleicher, 2016[1]). Improving teaching and learning remains the surest way of improving the educational system as a whole – and ensuring quality initial teacher training and continued professional learning is a key policy lever in this regard (Mourshed, Chijioke and Barber, 2010[30]). Improving the quality of the teaching profession is thus –with reason- at the centre of many education policy reforms (OECD, 2013[31]).

It should be noted that initial teacher education is not covered in this report, for the analysis focuses here on entry mechanisms of the SPD and continuous professional development. Upcoming OECD reports covering higher education in Mexico will provide elements on initial teacher education.

The entry mechanism instituted with the SPD aims to enhance the quality of the teachers and future educators entering the profession. Recent evidence points that the selection

mechanism (through the *concurso de oposición para el ingreso*, entrance examination) has contributed to improve the quality of new teachers, as they appear to have higher levels of knowledge than the cohorts entered before the *concurso* was established. According to some experts, the entrance examination effectively identifies the candidates who display the best levels of knowledge in mathematics and reading comprehension (de Hoyos and Estrada, 2018[32]; SEP, 2018[33]).

By allowing candidates from other professions to present the entrance examination (*concurso de oposición para el ingreso*), Mexico is opening the door to attracting quality candidates from broader backgrounds. Offering flexible teacher training opportunities, and opening new routes to enter the teaching profession to other professionals with relevant experience can be successful in ensuring a quality pool of candidates for the teaching workforce (Schleicher, 2018[2]). An issue is therefore to guarantee that these training opportunities exist and effectively allow new teachers to develop the skills necessary to guide student learning. As of 2018, Mexico is still in the process of reinforcing these mechanisms. The interviews led by the OECD suggested that these training mechanisms still needed further improvement. Mexico has started to invest in the professionalization of its education workforce, and needs to continue building on its efforts.

The obligation for new teachers to follow a mentoring programme (*tutoría*) during their induction period represents noticeable progress in the SPD. In 2013, 86.2% of primary education teachers and 72% of teachers in lower secondary education worked in schools that had no induction programmes for new teachers, while only 17.5% of teachers reported having a mentor, against 24.8% on average across TALIS countries (OECD, 2014[9]). Mentoring promotes teachers' professional growth by both expanding their knowledge base and supporting them emotionally (OECD, 2016[29]). It is well documented that teachers who participate in strong mentoring are more likely to impact their students' achievement positively, and to remain longer in post (Borman and Dowling, 2008[34]; OECD, 2016[29]).

The LGSPD does not only make mentoring compulsory during induction, it also grant teachers the right to receive this support. Since 2013, three mentoring modalities were developed: flexible and in-person with one mentor for one or a group of mentees; in-group, once per month in rural areas; and online. In-person mentoring is the only modality that allows for in-class observation, an activity highly valued by new teachers (INEE, 2017[35]; Mexicanos Primero, 2018[36]). The other two modalities consist more in an induction course with a personal project for teachers to carry out in their school, but have the advantage to adapt to the difficulties for small, remote schools to have access to mentors (Mexicanos Primero, 2018[36]).

The initial years of the SPD saw a mismatch between the need for mentors and the number of teachers, supervisors, school leaders or support staff available and willing to act as mentors, but progress had been made: SEP reported that 78% of the teachers received mentoring in 2015-2016 (SEP, 2018[37]), but with uneven coverage across states (Mexicanos Primero, 2018[36]). One of the reasons for the slow start was the low response rate among experienced professionals, for whom the incentives were unclear or intangible –some mentors report not having received their monetary incentive for two years (INEE, 2017[35]; Mexicanos Primero, 2018[36]). In 2017-2018, access to mentoring reached 88.9% of teachers (SEP, 2018[37]), by developing the three modalities and guaranteeing payment of incentives to mentors. Analysts report that challenges remain however, both to respect

teachers' right to mentoring and to guarantee that this mentoring effectively help them improve (INEE, 2017[35]; Mexicanos Primero, 2018[36]).

Continuous professional development (CPD) is slowly evolving under the impulse of the SPD. Providing CPD is the responsibility of the 32 states, across which the training and development offers vary greatly. Mexico introduced the National Strategy for Continuous Training of Teachers (2016) in basic and upper secondary education. The programme is intended to improve the skills of teachers, in particular those showing below average results in teacher appraisals. Under this strategy, staff will choose programmes –focused on content and/or pedagogical methodology- according to their needs and the results of their appraisal. Based on the tender (*convocatoria*) put out for continuous profession development, 26 training organisations (*instancias formadoras*) were accepted as official CPD providers by the SEP. Data provided by the SEP refers to a total of 1 196 different CPD and training programmes for teachers in basic education (in the form of courses, workshops and certification programmes (data communicated by the SEP to the OECD team).

The central authority also provides professional development programmes. As of 2018, 120 online courses and 46 online certification programmes (*diplomados*) were made available from the SEP for education professionals in basic education, and 64 different programmes were offered specifically to upper secondary education teachers (data communicated by the SEP to the OECD team). This implies considering a major challenge in Mexico: in-person training and other face-to-face professional development with tutors demand a great amount of resources given the number of education professionals and the scale of the country. The SEP started using technologies and online platforms to cope with this challenge. This resulted in 626 000 teachers, school leaders and supervisors signing in in 2017 (data communicated by the SEP to the OECD team, one teacher being potentially able to have completed more than one training). These training modules included the three courses offered to the teachers, school leaders and supervisors who had gone through performance appraisal (*línea 1)*; the courses proposed as part of the SPD processes of entry, promotion and permanency (*línea 2*); and all other courses available (*línea 3*). SEP estimates that an additional 1.2 million teachers will be completing courses specifically about the new education model in 2018 (by 4th June, it is reported progress on 74% of this figure). In upper secondary education, 110 000 teachers signed up for at least one course in 2016 and 2017; this number was 72 000 by mid-year in 2018 (data communicated by the SEP to the OECD team). SNTE also has developed a range of professional development courses for teachers through its foundation Fundación SINADEP (*Sistema Nacional de Desarrollo Profesional*, National System for Professional Development).

Overall, many of the components for the development of a comprehensive teacher career appear to be in place in terms of teacher selection and recruitment, mentoring, availability of professional development, and appraisal, reviewed in the next section. However, many of these processes appear to be excessively focused on the appraisal processes themselves, which dilutes the career perspective of the SPD.

Appraisal for quality teaching: a career perspective

The new SPD framework considers appraisal and professional development as complementary tools to enhance the quality of the teaching profession. Authentic professional appraisal, which refers to the accurate assessment of the effectiveness, the strengths and areas for development of educational professional practices (including

teaching, school management, advice and supervision) is central to the continuous improvement of schooling (Santiago et al., 2012[4]). Research highlights the importance of developing systematic approaches to teacher appraisal that support continuous learning for individual teachers throughout their career, and for the profession as a whole (OECD, 2013[31]). The SPD framework comprises four types of appraisal:

- the entrance appraisal (*concurso de oposición para el ingreso*), a teacher registration process for candidates to teaching positions in basic and upper secondary education
- the diagnostic appraisal (*evaluación diagnóstica*), a process of completion of probation for the newly appointed teachers
- the promotion appraisal (*concurso de oposición para la promoción*), an appraisal mechanism for promotion of candidates to management, supervision and counselling positions
- the teacher performance appraisal (*evaluación del desempeño*), a regular performance appraisal for in-service teachers.

Some components build upon existing policies. For instance, the selection process to enter the teaching profession was initially made through the National Teaching Post Contest (2008-13), which aimed to improve the transparency and quality of the selection process (OECD, 2018[8]). The new registration process for teachers is open to all bachelor graduates (*licenciados*) from public or private higher education. According to SEP data, between 2014 and July 2018, more than 806 000 candidates took part in the entrance appraisal (*concurso de oposición para el ingreso*) in basic or upper secondary education, of which close to 400 000 received sufficient results to be considered for teaching positions. Over the same period, more than 171 000 new positions were allocated through the entrance appraisal. Studies report that with time, the quality of new entrants appears to have improved, as suggested by a comparison of the academic results of new teachers before and after 2014 (de Hoyos and Estrada, 2018[32]; SEP, 2018[33]).

The promotion appraisal (*concurso de oposición para la promoción*) has also had a number of candidates from 2014 to 2018. SEP reports that during that period, more than 158 000 candidates took the assessment in basic education, of which 54.1% were estimated to be apt for new leadership positions, including school leaders, or supervisors. For basic and upper secondary education, more than 175 000 teachers took the text and 53.3% passed.

However, a larger part of the debate around Mexico's education reform package revolves around the performance appraisal component (*evaluación del desempeño*), and around the discussion of whether teachers should be appraised while in-service, how and with what consequences. According to SEP data, since 2014 until 2018, more than 1,6 million educators have gone through the evaluation process. This appraisal mechanism deserves some precisions.

The items used to appraise teacher performance are elaborated by the CENEVAL (*Centro Nacional de Evaluación para la Educación Superior*, the National Centre for Higher Education Evaluation) with the participation of teachers themselves: 50 000 teachers participated since the beginning of the teacher performance appraisal (information communicated by the SEP to the OECD team). The LGSPD assigns to the INEE the responsibility for approving the elements, methods and tools to carry out the appraisal.

The law determines that teachers must undergo performance appraisal at least once every four years.

The results from the professional performance appraisal are communicated by the CNSPD to the participants through an individual result report form (*informe individual de resultados*). As the integrated information and management system is being developed (*Sistema de Información y Gestión Educativa*, SIGED), these results are also being compiled in the system's database, and made available for consultation to each education professional, through their personal identification (Chapter 5 provides a detailed description of SIGED). Reports collected during the interviews with the OECD team show that in some schools teachers at least discuss their results with their school leaders, and some use them to investigate the available offer for continuous professional training, and to choose modules.

The interviews performed by the OECD team revealed two main findings. First, the teachers who had already been appraised or who knew fellow teachers who had been appraised, saw the professional performance appraisal as constructive in principle. Second, however, numerous teachers and education professionals manifestly fear losing their position because of the appraisal, in spite of the low likelihood to fail repeatedly on the appraisal. SEP data show that after five years of teacher performance appraisal, only 0.6% of the more than 200 000 teachers appraised failed three consecutive times (data communicated by the SEP to the OECD team).

The reforms' focus on student learning and school improvement implies that appraisal has consequences for educational staff. It is important to recall that by law, the performance appraisal mechanisms include the obligation for teachers receiving unsatisfactory results to follow professional development courses in order to improve their knowledge and practice. **In the case of teachers who were already in post when the law came into effect, the only risk if they receive unsatisfactory results on three consecutive performance appraisals is for them to lose their position in front of a class. This removal does not mean that the teachers lose their job in public education, but that they must fulfil other tasks than teaching in front of a class, as determined by the relevant local authority or decentralised organisation (LGSPD Article 53 and Transitory Article 8).** On the other hand, three consecutive unsatisfactory results will lead to destitution for the teachers entering the profession after the law came into effect. Very important, people in this situation can opt to re-entry into the teaching profession through the regular opposition contest now in place.

Other elements were pointed at that fuelled discontent with the performance appraisal processes. UNESCO elaborated a detailed report assessing the implementation of the first evaluation round for teachers (UNESCO, 2015[38]). Echoing the report's conclusion regarding the challenges of the appraisal process, the following elements of concerns were signalled to the OECD team. First, the initial design of the appraisal itself required teachers to take a long test (up to 8 hours) on a computer (when some teachers may not have the skills to properly use the machine), sometimes in dire conditions because the testing centres were far, or not offering the proper conditions for a test. The items on the first iteration of the test were sometimes considered inappropriate to assess teachers' pedagogical and professional knowledge (for instance, some actors considered that too much importance was granted to administrative questions as compared to pedagogical items).

Overall, education professionals complained with the lack of information and support offered for them to prepare for the appraisal. The professionals that the OECD team met

while on visit appreciated the help they could get from the school leaders and colleagues to prepare for the appraisal, yet most acknowledged that the appraisal would be hard to take if a candidate could not count with the same support. Finally, actors both in favour and opposing appraisal emphasized to the OECD the mismatch between the obligation for teachers with unsatisfactory results to improve their knowledge and practice through professional development and the mentoring and development options actually available.

In response to the criticisms, the INEE made the 2016 iteration of the appraisal voluntary, except for those education professionals who did not previously obtain favourable results. Almost 87% of education professionals still followed an appraisal process that year. This gave the Institute the time to re-design the test for 2017, based on reports such as UNESCO's, internal reflection and consultation with relevant actors in the system. With this new model, the INEE reintroduced the mandatory nature of the professional performance appraisal (OECD, 2018[8]). The new performance appraisal model consists of:

- A report on the fulfilment of the professional's (teacher's or school leader's or supervisor's) responsibilities. In the case of teachers' appraisal, both the teacher and her school leader fill a questionnaire which they can upload to a website;
- A teaching project (or of school management, or of advice and support) including pedagogical planning (or school/zone work plan), intervention and reflection on practice. The project lasts for eight weeks and is elaborated and realised by the professional herself in her school. Each professional receives training and has access to academic and technical guides according to her function;
- A sit-in exam on pedagogical knowledge, curriculum and disciplines, and legal and administrative knowledge related to the profession. The test takes about four hours to complete and teachers can choose the testing centre. Support for the preparation includes the offer of continuous professional development in pedagogical and disciplinary knowledge; informal support from the school leader and other teachers, depending on the schools (as reported during the OECD visit). In addition, participants had access to the guidelines that would be used by evaluators to mark their projects as well as simulating exercises. The test has between 100 and 120 items.

The first two components (the report and the teaching project) allow for appraising teachers in their context. These context-sensitive items make up 60% of the total appraisal, while the sit-in exam aims to evaluate the basic knowledge that all teachers are expected to master, no matter where they teach (40% of the appraisal).

The new appraisal model was used for the first time in 2017. In 2017-2018, 149 632 education professionals took part in the performance appraisal, of which 137 714 in primary and lower secondary education and 14 918 in upper secondary education (*EMS)* (data provided by the SEP to the OECD). By then, the SEP had started providing online preparation courses for basic education teachers called for the performance appraisal: one course about planning for teachers (*Proyectar la enseñanza*), one about management for school leaders (*Proyecto de gestión*) and one course about advice and support for supervisors (*Proyecto de asesoría y acompañamiento*). In 2017, more than 147 000 professionals followed these courses, exceeding the SEP's initial target by 20% (information provided by the SEP to the OECD).

Overall, the principles behind these appraisal processes are based on international evidence. The literature provides some suggestions as to what effective teacher evaluation

systems consist of in order to improve the teaching practice in the classroom and support learning. Researchers advocate for using common standards and metrics to build effective teacher evaluation systems. Professional teacher standards provide a comprehensive definition of what a good teacher should know and be able to do (OECD, 2013[31]). They guide important areas of teacher policy, such as the development and evaluation of initial teacher education and professional development, and they help to ensure the effectiveness of appraisal, by providing the standards to assess teaching and ensuring fairness and reliability in appraisal. Standards also help teachers to understand what is expected of them and what they should be working towards at different stages of their career. Standards thus allow for clarifying what is expected in terms of teacher performance, as well as directing them towards the training options appropriate to the skills or knowledge they need to develop or improve (Behrstock-Sherratt and Jacques, 2012[39]). OECD countries tend to place central emphasis on how teachers can mobilise these attributes collectively to enable learning in different domains of their professional work. In addition to the progress made already by Mexico in the creation of standards, the country can reinforce its use to guide training strategies as well. For example Danielson's Framework for Teaching, provides a good indication of the components that should appraised in teaching.

Box 4.5. Danielson's Framework for Teaching

The Framework has influenced many countries' teacher appraisal systems, and groups teachers' responsibilities into four main areas, with each component including several elements to appraise:

- planning and preparation: demonstrating knowledge of content, pedagogy, and students; selecting instructional goals; designing coherent instruction; assessing student learning
- the classroom environment: creating an environment of respect and rapport; establishing a culture of learning; managing classroom procedures and student behaviour; organising physical space
- instruction: communicating clearly and accurately; using questioning and discussion techniques; engaging students in learning; providing feedback to students; demonstrating flexibility and responsiveness
- professional responsibilities: reflecting on teaching; maintaining accurate records; communicating with families; contributing to the school and district; growing and developing professionally; showing professionalism.

Source: OECD (2013[31]) *Synergies for better learning*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264190658-en.

Matching teachers' appraisals with support for better learning

Mexico's efforts to use teacher performance appraisal for formative purposes (i.e. to enhance the quality of teaching professionals) lie at the heart of international evidence on the effectiveness of appraisal. The main purpose of teacher appraisal is to improve teaching so that there is effective student learning. Teacher appraisal is a way to ensure that students are taught by quality professionals, in their right to a good education, and are protected from underperforming teachers (OECD, 2005[28]). This requires a system for

teacher appraisal that enables teachers to receive regular feedback on their professional practice, indications on where to improve, and how they can do this, through links to professional development.

Formative appraisal can take different forms. In addition to more formal appraisal systems, TALIS analyses suggest that both teacher job satisfaction and self-efficacy are associated with meaningful teacher appraisals and feedback systems, and with participation in certain forms of continuous professional development.

According to international evidence, a teacher appraisal system that has an improvement component (emphasising developmental evaluation) and a career progression component (a model of certification of competencies for practice within and across career paths, associated with career advancement and based on a greater variety of instruments) can help to strengthen the teaching profession (OECD, 2018[8]; OECD, 2013[40]). Experts specify that if evaluation results come without options for professional development, teacher assessment is nothing but a missed opportunity to improve learning, whatever the type of evaluation: the evaluation process in and out of itself is not enough to improve teacher performance (Goe, Biggers and Croft, 2012[41]).

To ensure that the appraisal system has an improvement component, the SEP made specific efforts to take teachers' opinion into account as it redesigned its annual National Strategy for CPD (*Estrategia Nacional de Formación Continua de Profesores de Educación Básica y Media Superior*). The results of a survey of 92 884 teachers communicated to the OECD team in June 2018 clearly showed the demand for pedagogical training: 40% of the teachers surveyed asked that pedagogical training modules be strengthened. In 2017, more than 144 000 education professionals signed up for at least one CPD programme offered by the SEP following their participation in one of the SPD mechanism (i.e. entry, promotion or permanence) (data communicated by the SEP to the OECD team).

These initiatives for continuous professional development and training are appreciated, but appear insufficient to respond fully to the needs of education professionals. A widespread criticism of the teacher appraisal was the lack of a coherent offer for continuous professional development and training that could respond to the needs for development revealed in teachers' appraisal results. At the beginning of the reform process, SEP transferred the responsibility for professional development from its General Direction for Continuous Training to the National Coordination of the Teacher Professional Service (CNSPD). The CNSPD had just been created and also bore responsibilities in the operation of the teacher appraisal, which took a lot of time and resources to coordinate. As a result, the CNSPD was not armed to undertake training policies and programmes. Eventually, SEP reinstalled this office and its functions into the Ministry but this led to a serious delay in the implementation of training mechanisms for teachers, thus partly hindering the formative power of teacher appraisal.

Other concerns acknowledged by the SEP include issues inherent to online training. First, online courses cannot replace face-to face interaction with a tutor, coach or a fellow teacher. To try and enhance the follow-up and tracking of teachers' professional development, the Under-Secretariat for Upper Secondary Education (SEMS) was planning on putting two tracking mechanisms in place: one to allow state authorities to track their teachers' performance and progress with CPD (*modulo de seguimiento)*; and one for teachers themselves to keep track of their progress (*Kardex*) (information communicated to the OECD team during its visit in June 2018). Finally, professionals in remote or disadvantaged areas may not have access to the technology necessary to take

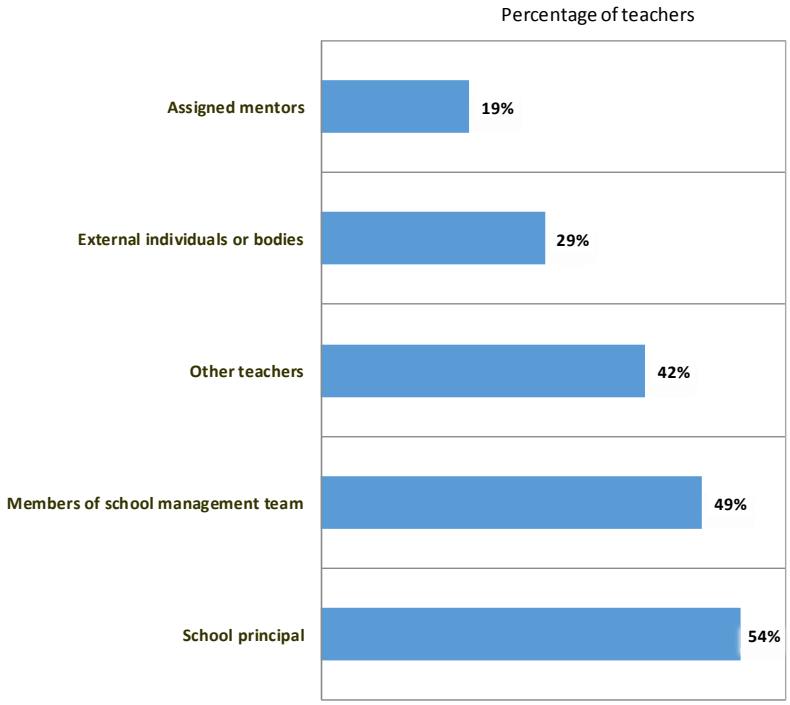
online professional development courses in proper conditions. One remaining challenge is thus to find alternatives to guarantee that these teachers, school leaders, supervisors and support staff.

Ensuring that appraisal systems have feedback mechanisms is also key for the success of the system. As illustrated in Figure 4.5, appraisals and feedback can come from a number of sources: the school leaders, peer teachers, an external evaluator, mentors, or others (OECD, 2014[9]). TALIS suggests that in many countries, teachers who report having received appraisals from more than one evaluator tend to report higher levels of job satisfaction and self-efficacy, suggesting that teachers value receiving feedback on their work by multiple sources. According to TALIS, before 2013, teachers in Mexico reported for the most part that teacher appraisal and feedback were largely done to fulfil administrative requirements (45%) and that they had little impact upon the way teachers teach in the classroom (40%). (OECD, 2014[9]).

There are different types of feedback which can include self-evaluation, informal peer evaluation, classroom observation, and structured conversations and regular feedback by the principal and experienced peers. Designed mainly to enhance classroom practice, such appraisal would provide regular opportunities for teachers' work to be recognised and celebrated, and help both teachers and schools to identify professional development priorities (OECD, 2005[28]).

Figure 4.5. Teachers' feedback by source of feedback, 2013

Percentage of lower secondary education teachers who report receiving feedback from various sources



Note: Feedback is defined broadly as any communication of the results of a review of an individual's work, often with the purpose of noting good performance or identifying areas for development. The feedback may be provided formally or informally.
Source: OECD (2014[9]), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, TALIS, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264196261-en.

StatLink http://dx.doi.org/10.1787/888933041782

Studies have found that observation scores can also provide feedback to teachers, as these are predictive of student achievement gains (Grossman et al., 2010[42]; Jacob and Lefgren, 2008[43]; Kane and Staiger, 2012[44]; Rockoff and Speroni, 2010[45]; Kane et al., 2011[46]). Other studies have shown that teacher performance does improve in response to evaluation (Taylor and Tyler, 2012[47]). The Gates Foundation Report on Designing Teacher Evaluation Systems, shows that a balanced approach which incorporates the student survey data and classroom observations has two important advantages: ratings are less likely to fluctuate from year to year, and the combination is more likely to identify teachers with better outcomes on assessments other than the state tests (Kane and Kerr, 2014[48]). TALIS data suggest that receiving feedback from student surveys and student test scores is associated with greater job satisfaction and self-efficacy in most TALIS countries. Again, in most countries, teachers who receive feedback on classroom management also reported greater job satisfaction, and the association is strong in half of these countries (OECD, 2014[9]).

The efforts made by Mexico to build professional learning communities, to enhance collaboration between peers and to reinforce the pedagogical leadership in school leaders' and supervisors' attribution are as many promising initiatives to increase the possibility for teachers to receive constructive feedback. As pointed out, however, there is still some progress to make for this feedback and collaborative learning culture to take root in all schools.

Finally, with regards to the permanence, evidence shows that there needs to be simple, transparent and accepted procedures for dealing with ineffective teachers. Although the number of such teachers has proved to be small in Mexico, as those not approving have been a minor proportion, the issue can cause concern not only for schools and the general teaching force, but also for the poorly performing teachers themselves. The introduction of more rigorous approaches to selection and probation before teachers are granted tenure in Mexico, as well as ongoing, regular formative teacher evaluation, will prevent low quality teachers from entering and remaining in the classrooms. The focus, as has been designed in Mexico, needs to be on regular, ongoing teacher evaluation providing clear and constructive feedback to teachers on their performance, and jointly identifying appropriate developmental strategies. However, as suggested from international evidence, if improvements do not occur, processes should exist to move ineffective teachers either out of the school system or into non-teaching roles. At these stages it would be important for authorities external to the school, including representatives of the teaching profession, to become involved in decision-making and for appeals mechanisms to protect individual teachers' rights (OECD, 2005[28]) taking into account children´s right to quality education.

Overall, from the intended reform objectives in Mexico to improve quality and equity in education, the different components of the teacher career and appraisal system will have little value if they do not lead to the improvement of student learning and classroom practice. The different evaluation and assessment components need to be geared towards this path. There are often challenges in communicating the ultimate objective of evaluation and assessment and this has been perhaps one of the major challenges of this component of the education reform in Mexico. This is why it is important to have a more constructive view of evaluation and assessment that encompasses the different components focused on ensuring the professionalization of the teacher workforce through processes than grant transparency and support in the entry, selection and permanence of the profession. The ultimate objective is for students to have the best possible teachers in Mexico.

Recommendations for future policy development and implementation

Mexico has made significant progress towards transforming schools into learning communities and implementing concrete efforts to introduce a professional teacher service. The school at the centre strategy (*La Escuela al Centro*) was created by SEP to give coherence at the school level to Mexico's 2013 reform priorities, and reorganise school support programmes accordingly. It aims to reduce the bureaucratic load for schools and guarantee that they have the skills and resources to foster active participation and collaboration within the school community, with the purpose to enhance educational outcomes. The strategy reflects Mexico's intention of building change and innovation capacity within schools and local governments as a key enabler to transform schools, supporting the development of a stronger teaching workforce and improving the education system. Principals, teachers and other pedagogical support staff such as Mexico's new school improvement support service (SATE) are active agents of this transformation with the schools.

At the same time, the Teacher Professional Service (*Servicio Profesional Docente*, SPD 2013) has established a framework for the educational profession, including teachers, school principals, vice-principals, coordinators, supervisors, inspectors, and technical pedagogical advisors (*asesores técnico-pedagógicos*, ATP). It sets out the basis for selection, induction, promotion and tenure possibilities, as well as for continuous professional training for educational staff. The SPD aims to guarantee knowledge and capacity for educational staff and bring into a coherent whole several elements that reward good performance and improvement, and provide incentives for both schools and individuals.

Still, there is scope to further develop both policies to ensure that they contribute to effectively support teachers and schools towards enhancing student learning. More concretely, Mexico might consider to take action in the following: i) strengthen leadership and school-level collaboration to enact the School at the Centre strategy; ii) promote the career perspective of the Teacher Professional Service; iii) prioritise continuous professional development and SATE to grow education professionals' quality; and iv) keep adjusting the professional performance appraisal to deliver on both its formative and summative functions.

Strengthen leadership and school-level collaboration to enact the School at the Centre strategy (La Escuela al Centro)

Mexico should continue its efforts to bring together the different programmes and strategies that land at the school level by ensuring that schools are ready to make them happen. This requires enhancing school leaders' skills and their capacity to make decisions. To reinforce the efforts and achieve more effective school autonomy, leadership, teaching practice and, in general, support quality and equity in education, some aspects can be considered:

- **Keep sharpening the skills of school leaders, supervisors and support actors such as the ATPs**. The SEP has made a significant step in this direction with the creation of specialised online courses and certification programmes, as well as the formalisation of the promotion mechanisms for teachers to take on new positions. Currently, becoming a school leader or a supervisor requires going through a teaching career first. These roles have common characteristics, but require some specific skills –skills in management and leadership in the cases of supervisors

and school leaders. Leadership, management and advising skills develop with time and practice, and these professionals will need additional support as they take on a more prominent role in educational improvement.

Mexico could thus strengthen its offer of continuous professional development programmes directed to the leadership and advisory figures, to make sure it meets the needs for skills and knowledge, and that it adapts to schools' local context. It is important to acknowledge that no single set of competences will be effective in all school and social contexts. Different types of skills will be required for instance, to lead small rural schools and large urban centres. Leaders thus need both generic and locally contextualised skills. The literature suggests that successful in-training continuous development programmes are research-based and are coherent with the curriculum, and provide experience in real contexts, using cohort grouping, mentorship and collaborative learning structures between the programme and the schools (Pont, Nusche and Moorman, 2008[22]).

The SEP and some state authorities have been promoting such collaborative learning structures, which it should strengthen to guarantee that all schools can grow with those (see the recommendation on strengthening professional collaboration at school level). Similarly to Mexico, education systems have come to acknowledge the important role school leaders, supervisors and support actors play –or could play- in school improvement ((OECD, 2010[13]; Pont, Nusche and Moorman, 2008[22]). In general, leadership training covers a range of aspects of school management and educational leadership. However, tailored training programmes may also focus on contextual factors that leaders need to take into account at national, regional, local and school level. Australia, Austria, Chile, England, Finland, Ireland, New Zealand, Northern Ireland, Slovenia and Sweden, systematically offer in-service training programmes to school leaders.

- **Strengthen professional collaboration within and between schools**. National and regional authorities should help schools grow a culture of collaboration, so all may progress as learning communities. Existing collaborative structures have been promoted within the new educational model. However, it takes times to install the group culture necessary for professional collaboration and learning to happen at school level. Peer collaboration, collective efforts, communication, linkage to community, student collaboration, local-regional-national collaboration, are just a few forms collaboration can take.

  The key structures for collaboration within the schools are: the CTE and more generally the pedagogical team composed of the school leader, teachers and potential school ATPs; and the SATE. While operating at supervision level, the SATE will be in a unique position to advise the school's pedagogical team. Mexico is currently at the beginning of its efforts to professionalise the leaders in their strategic pedagogical positions. In this context, the OECD observed that school staff collaboration depends on the maturity of the school leader and teachers as pedagogical entrepreneurs. The supervision units (*supervisiones escolares*) and the SATE are also key mechanisms to facilitate professional exchanges between schools within the same school zone. They are not the only mechanisms, however. Especially, the "Learning between schools" initiative holds great potential to promote collaboration between schools, and should be pursued and institutionalised in every school zone.

Promote the career perspective of the Teacher Professional Service

The professional performance appraisal has focused a large share of the attention around the teaching profession, to the expense of other career items included in the Professional Teacher Service (SPD). To keep strengthening the professionalization of educational careers in Mexico it would be important to also focus on other components of the Professional Teacher Service that contribute to professionalization as essential for an education system to fulfil its mission (OECD, 2010[13]; Santiago et al., 2012[4]). Mexico's education authorities should support further actions to show that the SPD is a coherent career structure beyond evaluation for education professionals. To this extent, relevant authorities should:

- **Ensure that the mentoring (*tutoría*) takes place for all new entrants in the teaching profession, as well as for new school leaders, supervisors and ATPs.** Recruiting and training tutors takes time and resources, but central and state authorities should guarantee that the professionals taking a new position actually benefit from the mentoring they are legally entitled to. Failing to provide this mentoring could prevent new teachers from developing the pedagogical skills they need to know to help on their learning journey. Mentoring is crucial during the induction period of teachers. Mentors are key actors to help new teachers transition from initial education to practice at the school level (Santiago et al., 2012[4]). Some states took concrete measures to make sure a majority of the new entrants could have access to a tutor of quality. Puebla has been a pioneer in providing mentorship to new teachers: in 2017-2018 1 841 mentors (*tutores*) tutored more than 3 000 new entrants. At the beginning of the school year 2017-2018, the state's centres for school advice and support (*Centros de Asistencia Técnica a la Escuela Poblana*, CATEP) dispensed 15 hours of workshop on how to tutor new teachers, while the People University of Puebla State (UPAEP) offered a certification programme for tutoring of 120 hours (SEP, 2017[49]) These successful examples could be given more visibility throughout the regions, so state authorities can learn from each other and find solutions to guarantee support for new entrants.

- **Certify that new entrants from another career than education have pedagogical skills or have access to extra pedagogical training upon entry**. The recent results on the entry exam for teachers have shown that candidates who did not pursue initial teacher education (*normales*) tend to score lower on pedagogical questions, even if they have another degree in higher education (information communicated by the SEP to the OECD team). It is therefore crucial to pay particular attention to these candidates if they enter the profession. One option is to require these candidates to sign up and pass basic courses in pedagogy and education fundamentals before they can be confirmed in their position. This would come as a complement to the two years of mentoring. In France for instance, the entry mechanism also allows entry for students from other career or professionals with background other than in education. These candidates are required to sign up to some courses in teacher colleges (ESPE in France), for one or two years, and to alternate between courses and practical experience in the school they are affected to for their induction period after they pass the entrance exam (l'Education,(n.d.)[50]).

- **Guarantee that the training and promotion components of the SPD are effectively implemented.** During the visit, the OECD team noted that some

considered that the SPD has mainly focused its efforts on the accountability aspects of the appraisal. There is a considerable risk that an excessive focus would contribute to the teaching profession to lose motivation to participate, and could hinder authorities' efforts to build trust in the SPD. To prevent this, it is important that the SPD invest more in the implementation of its training and promotion instruments and build coherence between the different components of the SPD.

Prioritise continuous professional development and SATE to grow education professionals' quality

To support career development and enhance quality in education, national authorities introduced a new national training strategy for teachers, school leaders, supervisors and advice and support staff. While training has reached many through face-to-face modalities and virtual platforms, interviews by the OECD team revealed a demand for training to be better tailored to the schools and to their teachers' needs. This is consistent with the literature, which finds that the most effective training strategies contain a mix of modalities: online and in-person programmes, and courses outside of the schools with supervised project in the schools (OECD, 2014[9]). It appears **that professional development opportunities have not yet evolved to meet the need for skills and knowledge update. The recent efforts to strengthen the national strategy for professional development must be acknowledged. However the offer needs to improve in order to allow teachers, school leaders, support and advisory staff and supervisors to grow as professionals.**

In this regard, it is important to ensure that teacher professional development elements form a coherent whole and are directed towards the improvement of classroom practices and student learning. In this sense, Mexico might could:

- **Enhance professional development at the school level via collaborative learning and the SATE**. As it progresses in its implementation, the SATE must be able to give school teams advice on how to use their professional interactions as a key tool to grow professionally, and to lead and participate in their school's improvement initiatives.
- **Balance the modules in the national and the state strategies for education personnel's development (*estrategias de formación docente)* between in-person, school-based and remote (online) options**. A pioneer in reforming the state's strategy for education professionals' development, the state of Puebla designed its basic principles for the development of training programmes in compulsory education, which could be considered an example for other states to follow and apply when revising their own strategies (see Box 4.6)

Box 4.6. Basic principles for the development of training programmes for compulsory education personnel (Estado de Puebla)

- Use diagnostic evaluations to understand the needs in terms of training and design the modules based on these.
- Offer mainly in-person training.
- Do not overwhelm learners with "waterfall training".
- Offer peer training (entre pares) with coaches/mentors who have experience in the public education system.
- Choose training partners who prioritize collaboration over commercialisation.
- Limit the groups' size to 25 learners maximum.
- Favour regional deployment of training.

Source : Secretaría de Educación Básica del estado de Puebla (2017[51]) "Reunión para elaborar el programa académico de formación continua para el Servicio de Asistencia Técnica y de Tutoría"

- **Make sure offers for continuous professional development align and are clearly linked with the professional standards (*Perfil, parámetros e indicadores* (PPI) *para docentes y técnicos docents*, PPI *para personal con funciones de ATP* and PPI *para personal con funciones de dirección y de supervisión*), and with the knowledge and skills required by the new curriculum**. For instance, the first dimension in the primary teacher profile (SEP, 2018[52]) describes the "good" teacher as one who organises her work around her students' learning; develops didactical strategies to help her students learn; uses student-learning assessment in a formative purpose; and builds an environment that is conducive to learning. Some training programmes already exist in Mexico for these elements. There is no guarantee that all are available to the teachers who need to reinforce these skills, or that teachers know how to look for each training component. As states revise the training modules and other coaching programmes offered locally, they should strive to facilitate access to the training offer. For instance, each state could have an online platform where certified training providers' offers are labelled according to the terms used in the PPIs (including the modules offered by the national and state Secretariats for Public Education), to facilitate the search by education professionals.

Keep adjusting the performance appraisal to deliver on both its formative and summative functions

Appraisal of teachers –and of school professionals in general- can contribute to improvement in educational outcomes by holding education professionals accountable (summative function) and by revealing their strengths and areas for professional progress (formative function) (OECD, 2010[13]). In both instances, performance appraisal is only a tool for educational improvement and should therefore constantly be adjusted to fulfil its role. In order to guarantee that professional performance appraisal fulfils its improvement role, Mexican authorities should:

- **Make sure the appraisal instruments are adequate to assess performance**. Gathering multiple sources of evidence about professional practice meets the need for accuracy and fairness of the appraisal process, taking into account the complexity of what a "good" teacher, school leader, supervisor or advisor should know and be able to do. In the case of teacher appraisal, the most frequently used instruments are classroom observation, interview/dialogue with the teacher, teacher self-appraisal and portfolio (OECD, 2013[31]). The current 60%-40% split between contextualised appraisal instruments and the standardised exam allows for balance in the teacher performance appraisal. This balance should be sustained and used as a lever to enhance trust in performance appraisal. In the case of appraisal of teachers for instance, Mexico could consider performing in-school and in-class observations with local resources throughout the year. The results of these frequent observations could be part of an enlarged joint responsibility report by the professional being appraised and her direct superior.

  Classroom observations are likely to be among the most relevant sources of information about professional performance, as most key aspects of teaching are displayed while teachers interact with their students in the classroom. They also appear to be the most common source of evidence used for teacher appraisal, and are a key element in school evaluation. The school leader or a member of the leadership team typically undertakes classroom observation, but a greater variety of professionals can get involved. In Chile, teachers are interviewed by a peer evaluator, the school leader provides her own written report, and a 45-minutes class is video-recorded and then evaluated in an evaluation centre run by the national institution responsible for teacher appraisal. Only teachers who have been previously rated as "outstanding" or "proficient" can apply to become peer evaluators. Box 4.7 gives the example of teacher appraisal in Chile, which relies heavily on evaluation by peers and has thus required building capacity at a large scale. While high-quality observations appear to be related to increases in student learning outcomes, this relationship is highly dependent on having excellent instruments and well-trained observers (OECD, 2013[31]). The authorities in charge of developing the standardised teacher exam have been involving 50 000 teachers since the first appraisal sessions, to engineer the questions and make sure they properly assess teacher performance. As the new curriculum progresses in its implementation, the items on the exam should be revised so the questions measure also the new knowledge required of teachers for the success of this curriculum.

Box 4.7. Building capacity for peer appraisal in Chile

One of the characteristics of **Chile's** teacher appraisal approach (*Docentemás*) is the high involvement of practising teachers as evaluators. The participation of teachers at various stages of the appraisal process contributes to building ownership and appraisal competency among teachers and may also help them to understand and benefit from their own appraisal to a greater extent. Practising teachers can apply to two key roles in the appraisal process: (1) as evaluators of teacher portfolios in one of the centres set up for this purpose by *Docentemás* in various universities; and (2) as peer evaluators who conduct peer interviews and participate in the municipal evaluation commissions. For both roles, intensive preparation processes have been set up to build the capacity of those selected. The portfolio evaluators are trained in a one-week training session, where they work together with specialists on concrete examples of different performance levels. The training sessions comprise individual and group work in which teachers discuss judgements about proficiency levels. This is followed by a test period where the evaluators apply what they have learned, internalise the portfolio evaluation processes and benefit from group discussion about the results. The peer evaluators are selected and trained by the national *Docentemás* team or the local university in charge of the process. Only teachers who have been previously rated as Outstanding or Proficient can apply to become peer evaluators. They receive training in two full-day seminars, during which they learn about the six questions to be asked in the interview and the rubrics to be applied in assigning performance levels. The training also includes exercises and feedback to the participants. At the end of this training phase, there is another selection process and not all of those initially selected will be retained as peer evaluators.

Sources: OECD (2013[31]) *Synergies for better learning*, OECD Publishing, Paris.

- **Offer better-tailored support for education professionals after they receive the results, to update their knowledge and develop their professional skills**. If the professional performance appraisal is to be better-accepted, relevant authorities need to build confidence in the process, and to use the appraisal results in a constructive way for education professional development. Support is especially important in those cases where appraisal is still perceived as a sanction rather than a tool to orientate professional development. Appraisal results should be used as one core input to guide individual and national strategies for continuous professional development, as well as the schools' improvement route, which gives its formative function to the appraisal. Other input for these strategies include teacher's and school leader's opinion; and national and local needs for development.

  Depending on the strategic level, Mexico already disposes of a large array of tools to collect, analyse and diffuse appraisal results. For instance, the SIGED (*Sistema de Información y Gestión Educativa*, the system for educational information and management) has made significant progresses in its implementation which should be put to use. For instance, the constantly updated platform could inform states on which training offers to add to their catalogue to respond to the needs expressed in their teachers' results. At the school level, school leaders and teachers should have access to their results either online or through the individual form they receive after their appraisal. The teams could share their results to plan their

professional development as a group in CTE sessions, using the Improvement Route (*Ruta de mejora*) as a collective planning tool.

Chile is an example to look at, as a system that makes extensive use of appraisal results for development. The Chilean system systematically uses results in a professional development plan for teachers who have obtained a "basic" or "poor" rating. In Memphis, Tennessee in the United States has developed a system that explicitly links professional learning to teacher appraisal. In Memphis City Schools appraisal is based on teaching standards, and professional development is linked to teachers' competence on the standards. Thus, a teacher who has poor performance on a specific indicator can find professional growth opportunities related to that specific need. Memphis City Schools publishes a professional development guide each year that lists the professional growth offerings by standard and indicator. In addition, most of the professional development courses are taught by Memphis City School teachers, thus ensuring that the course offerings will be relevant to the contexts in which these teachers work (OECD, 2013[31]). The following example can be helpful in developing these mechanisms. In the **United States**, the New York State United Teachers union started the Teacher Evaluation and Development (TED) system, which is approved at state level for district use. TED integrates in-service learning activities within a four-step evaluation cycle that is repeated yearly. In TED, teachers first reflect on their own performance and practices in the classroom. They then collaborate with the evaluator to collect evidence on their teaching practices and outcomes, analyse the data collected and exchange viewpoints on what they mean for their effectiveness as a teacher. During a summative evaluation, this evidence is put together with proofs of student achievement and the evaluator gives a score and recommendations for professional growth, based on which the teachers and their administration build individual learning plans (Coggshall et al., 2012[53]; NYSUT, 2012[54])

- **Maintain the summative function of the appraisal while making sure that the professionals that obtain unsatisfactory results have access to programmes that give them the opportunity to improve between appraisals**. Underperformance in regular appraisal for performance management most frequently leads to compulsory training and further appraisal. In many countries, it may also have an impact on contract, career advancement or salary levels. In Australia, Austria (in extreme cases only), some provinces/territories in Canada (at the discretion of the evaluator), Chile and New Zealand, there is the possibility for underperformance to lead to transfer, suspension or dismissal of the teacher. This report mentioned the concerns expressed in Mexico about the insufficiency of the professional update and development options offered in case a teacher obtaining "unsatisfactory" results. As national and state authorities keep updating their strategies for continuous professional development, those education professionals should be given some priority. By enriching and clarifying the offer of training modules, mentoring programmes and other alternatives for building knowledge.

Notes

[1] An administrative vice-principal (for schools with more than 6 groups) and an academic vice-principal (for schools with more than 10 groups).

[2] There are four major programmes related to the Teacher Professional Service: i) admission and promotion evaluations; ii) performance evaluation; iii) a National Strategy for Continuing Education of Teachers of Basic and Higher Education; and iv) a program to strengthen and transform Teachers' Colleges (*Normales*).

[3] The kind of project varies according to the role: for school leaders should be a project on management practice for schools and for supervisors should be a project on advice and support for schools.

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Chapter 5. Focusing evaluation and assessment on schools and student learning

This chapter discusses the role that evaluation and assessment practices have in supporting student learning, schools and the education system in Mexico. In particular, this chapter emphasises the role of INEE (as an autonomous body); the contribution that PLANEA can have in bringing the benefits of standardised student assessments results into the classroom; and the substantial progress Mexico has done in the gathering of data and information for guiding policy makers, educational actors and the general public in the education policy domain. The chapter concludes with recommendations for future policy development to enhance the contribution of evaluation and assessment practices to student learning and the operation of schools.

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

Introduction

Assessment and evaluation are increasingly used by education actors such as governments, education policy makers, school leaders and teachers as tools for understanding better how well students are learning, for providing information to parents and society at large about educational performance and for improving school, school leadership and teaching practices. Furthermore, results from assessment and evaluation practices are becoming critical to establishing how well school systems are performing and for providing feedback, all with the goal of helping all students to do better (OECD, 2013[1])

In Mexico, evaluation and assessment practices have evolved to play an important role to support quality and equity in education. One of the major aspects of the recent education reforms in Mexico (2012-2013), was providing autonomy to the National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación*, INEE, 2002) and giving the responsibility of coordinating the national system of education evaluation (SNEE). This is a major institutional effort to support the provision of quality with equity in education, together with the National Plan for Learning Assessment PLANEA (*Plan Nacional para la Evaluación de los Aprendizajes*) as a crucial instrument to achieve this goal.

Mexico has also placed considerable efforts in reinforcing a series of instruments (the school improvement route) and bodies (School Technical Council, CTE) to support the connection between policy making at macro level and implementation and adjustment at school level. This chapter reviews the development of current evaluation and assessment practices in Mexico. It:

- Gives recognition to the continuous efforts to consolidate the vision that evaluation and assessment mechanisms are essential inputs to improve quality and equity in education, not an end by themselves. These efforts include the provision of evaluation and assessment information to guide the work and decisions of policy makers, school leaders, teachers, students, families, researchers and stakeholders.
- Recognises that PLANEA is a major step towards reinforcing the role of standardised assessment instruments for students as a tool to improve learning, and that more resources should be invested to make sure teachers use all the materials derived from PLANEA to improve student learning and adapt it to student needs.
- Calls for action to promote and use system evaluation information in education to identify disadvantaged students and to provide guidance in the construction of policy instruments to support them better.
- Identifies the need to invest more in the development and capacity for evaluation and assessment practices at state and school levels. In particular, that it is important to promote self-evaluation in schools through instruments and bodies such as the school improvement route (*Ruta de mejora escolar*) and CTEs, and supported by SATE and CTZs.
- Recognises the need to continue enriching the knowledge and managing tools in the education system to inform and support the activities of policy makers, educational authorities at federal and state levels, supervisors, school leaders and

teachers through services such as SIGED whose potential is enormous, especially at school level.

The chapter is divided in three sections. Following this introduction, the first section discusses the main characteristics of the evaluation and assessment system in Mexico, while the second section makes an assessment of its recent performance. The chapter concludes with a section that reflects on remaining challenges and policy recommendations. This chapter does not include teachers' appraisal, which is analysed in the chapter 4 on teachers and schools.

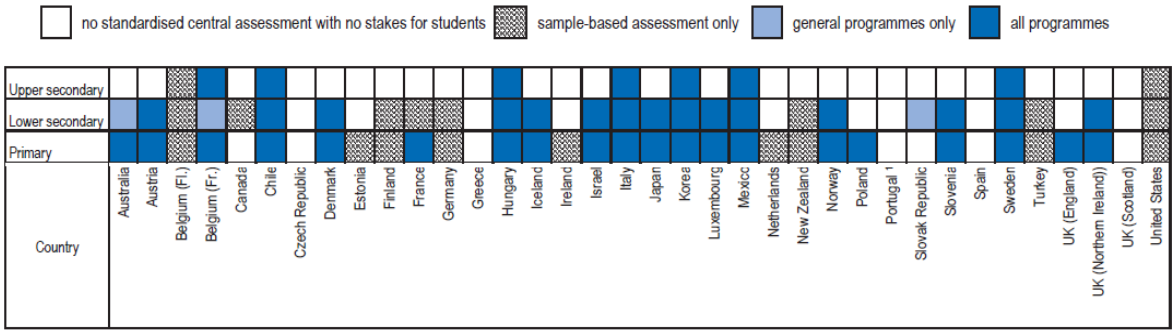
Policy issues on evaluation and assessment practices to support quality and equity in education

The formative value of standardised student assessment

Student assessment refers to processes in which evidence of learning is collected in a planned and systematic way in order to make a judgment about student learning, this information can shed light also on individual school performance and about the school system in general when data and information are considered at aggregated level (OECD, 2013[1]). In general, the most common distinction is between summative and formative assessments. Summative assessment aims to record, mark or certify learning achievements. On the other hand, formative assessment aims to identify aspects of learning and it is developed in order to deepen and shape subsequent learning (OECD, 2013[1]). At the same time there are also distinctions between internal or school-based assessment and standardised (external) assessment. Internal assessment is designed and marked by the students' own teachers, often in collaboration with the students themselves, and implemented as part of regular classroom instruction, within lessons or at the end of a teaching unit, year level or educational cycle. Standardised assessment is designed and marked outside individual schools so as to ensure that the questions, conditions for administering, scoring procedures, and interpretations are consistent and comparable among students (Popham, 1999[2]).

Positive effects of using student results from large-scale assessments to inform teaching may include: greater differentiation of instruction, greater collaboration among colleagues, an increased sense of efficacy and improved identification of students' learning needs (van Barneveld, 2008). At the same time, these benefits depend on a number of factors, including providing the results on time for teachers to actually use them with their students (Wiliam et al. 2004) and offering the support necessary for them to understand what the results say about the students' learning needs, and what strategies can teachers adopt to help their students. Centralised assessments are indeed used for several purposes, including monitoring, which limits the depth of the diagnosis that can be made on individual student learning (OECD, 2013[1]). As shown in Figure 5.1, a few countries use centralised student assessments with no stakes in all three cycles of primary and secondary education (Mexico included).

Figure 5.1. Existence of standardised central assessments with no stakes for students, 2012



Note: Before 2012/2013 Portugal had national assessments in Portuguese and mathematics.
Source: OECD (2013[1]), *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, OECD Reviews of Evaluation and Assessment in Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264190658-en.

Overall, while there is some evidence that data from large-scale assessments are being used successfully to identify students' strengths and weaknesses, to change regular classroom practice or to make decisions about resource allocation (Anderson et al., 2004; Shepard and Cutts-Dougherty, 1991), they need to be embedded in broader, more comprehensive assessment systems that include a range of summative and formative assessments, curriculum tasks, instructional tools, and professional development that helps teachers understand which assessment information is most appropriate for a particular purpose (OECD, 2013[1]).

Reinforcing evaluation and assessment institutions

Mexico has made significant progress in building a range of evaluation and assessment measures to ensure accountability in education policy and provide the basis for school and student learning improvement. These measures include mechanisms for the assessment of students, the appraisal of teachers (reviewed in the previous chapter) and school leaders, and the evaluation of schools and the school system.

A fundamental piece of the Mexican effort to make sure that the constitutional right to education is being guaranteed to all students, was the development of the national system of education evaluation (*Sistema Nacional de Evaluación Educativa*, SNEE) under the coordination of INEE. Thanks to the Law of the National Institute for Education Evaluation (2013), the existing National Institute for Education Evaluation (INEE) was transformed into an autonomous body with the functions of coordinating the National System for Education Evaluation. INEE has the mandate to assess the quality, performance, and results of the national education system of basic and upper secondary education. The Institute also has the function to design, and conduct measurements and evaluations of the components, processes, and outcomes related to the attributes of learners, teachers and school authorities, as well as the characteristics of institutions, policies and educational programmes.

Governance

The Secretariat of Public Education (*Secretaría de Educación Pública*, SEP) and INEE are responsible at the federal level for the development, implementation and co-ordination of evaluation in the education system. INEE, in particular is responsible for

coordinating the National System for Educational Evaluation (*Sistema Nacional de Evaluación Educativa*, SNEE). Evaluation and assessment at the higher education level is carried out by the National Assessment Centre for Higher Education (CENEVAL), which administers standard exams for entry into a large part of undergraduate tertiary education and exams to assess qualifications at the completion stage of higher education courses (OECD, 2018[3]).

External monitoring of schools is undertaken at the state level by the supervision systems of individual states. There are 14,197 supervisors in Mexico, who work with an average of 6 or 50 schools, having the responsibility of attending and monitoring the educational service they provide. Around 80% of primary schools and 50% of lower secondary schools are inspected annually, with the main focus of inspections on the monitoring of compliance with rules and regulations. The results of inspections are not publicly available and not widely shared among educational authorities. According to PISA 2015, schools in Mexico are slightly more likely than average to conduct a self-evaluation of their school (93.9% compared to the OECD average of 87.1%) and to have external school evaluations (74.7% compared to the OECD average of 63.2%) (OECD, 2018[3]).

Main components of the assessment and evaluation system in basic education in Mexico[1]

Student assessment

Student performance in basic education in Mexico is assessed by a wide range of instruments, ranging from national standardised assessments to continuous formative assessment in the classroom. Teachers take the main responsibility for student assessment. All students are assessed in an on-going manner throughout the school year in each curriculum area or subject.

In Mexico, national student performance assessment is primarily carried out through the National Plan for Learning Assessment (*Plan Nacional para la Evaluación de los Aprendizajes*, PLANEA). PLANEA was developed as a centralised assessment, which can be used for formative purposes, and has a modality for educational authorities (ELSEN) and other modality for schools (ELCE). PLANEA replaced the previous school and student assessments: *Evaluación Nacional del Logro Académico en Centros Escolares* (ENLACE) and *Examen para la Calidad y el Logro Educativo* (EXCALE). PLANEA, was first implemented in 2015 in two domains (Language and Communication and Mathematics), while its second round took place in 2016. PLANEA aims to be a formative assessment that informs how students are progressing in the system. Unlike its predecessor ENLACE (*Evaluación Nacional del Logro Académico en Centros Escolares*), PLANEA is not intended for ranking of schools or other formal consequences for students, teachers or schools.

INEE administers PLANEA which combines three distinct standardised assessments and evaluations[2] that monitor student learning outcomes at different levels of the education system, including national and sub-national data and information on schools and individual students. These three modalities, reviewed separately in the following sections, are:

- ELSEN: a sample-based national system-level evaluation (*Evaluación del Logro Referida al Sistema Educativo Nacional*)

- ELCE: a sample-based national school-level evaluation (*Evaluación del Logro referida a los Centros Escolares*)
- EDC: a diagnostic census-based assessment (*Evaluación Diagnóstica Censal*).

The EDC which is a formative census-based standardised student assessment in Grade 4 is implemented every year and covers the subjects of Language and Communication and Mathematics. At the student level, results are used formatively to inform subsequent teaching strategies. It is implemented by schools and teachers at the beginning of the school year. Results are disclosed just to the schools themselves.

The EDC has been developed with the purpose to offer information for the improvement of teaching processes in schools. In particular, the design of EDC allows teachers to have support in front of a group with an instrument that facilitates the diagnosis of their students at the beginning of the school year because it provides information about the knowledge and skills that students should have achieved during previous courses. This information should allow teachers to:

- Adjust pedagogical interventions to the characteristics and needs of students.
- Detect those students that will require more attention to conclude successfully the course.
- Provide personalized feedback to students.
- Establish a baseline for the school community to identify the effectiveness of pedagogical interventions.

The EDC is meant to offer fourth-grade teachers an additional standardized instrument (besides the pedagogical material teachers might already have in their classes) with three important characteristics:

- The selection of contents for the assessment is carried out collegially by specialists in basic education curriculum, so the instruments are balanced in terms of the diversity of issues considered.
- Teachers from different classrooms, and even from different schools, have elements in common for reflection and for dialogue between peers.
- Together with the results of PLANEA, teachers are provided with a guide that includes the purposes of this assessment, how to apply it and analyse the results; the intention is to encouraged a broad reflection on what the teacher can do considering the initial knowledge level students have at the beginning of the course.

This component of PLANEA is operated by SEP while INEE provides tables of contents, curricular analysis, the set of questions with its psychometric assessment, technical support throughout its development, and when appropriate, (technical) approval of the results. Both SEP and INEE analyse and select the most appropriate questions for the purposes of this version of the assessment and then SEP distributes the instruments to the teachers of fourth grade of primary school at the beginning of the school year. EDC is jointly designed by SEP and INEE, and implemented and marked by teachers at classroom level.

Furthermore, the EDC assessment is a part of the pedagogical activity carried out by the teacher, and the results obtained are meant to be used only within the school; they are not

disclosed outside the school and are not used for accountability. The EDC started in the 2015-2016 school year with Language and Communication and Mathematics assessments. SEP is in charge of offering guidelines to mark and interpret the results, and an optional support software for the generation of reports for the teacher and the school community (INEE, 2015[4]).

School evaluation and system evaluation

In terms of school evaluation, school-level aggregated data, including results in PLANEA assessments, provide general information on student performance against state and national averages. Schools are encouraged to engage in self-evaluation, while advice and instruments are provided nationally. In particular, Mexico has put in place the mechanism *Ruta de mejora escolar* (school improvement route) which is a set of processes meant to guide the School Technical Council (CTE) in its tasks of managing school improvement. This route considers five steps: i) planning, phase where the CTE makes a diagnosis of the school situation and identifies priorities for improvement; ii) implementation, it is the operationalisation of the actions to achieve the priorities for improvement identified by the CTE in the planning phase; iii) monitoring, it is the set of actions the CTE and teaching staff agree upon to make sure there is adequate progress made to achieve the priorities for improvement identified; iv) evaluation, it is the systematic process of collecting data with the purpose of assess if the priorities identified have been achieved, v) accountability, it is the process where the school leader and teaching staff report to the school community about the results obtained in the application of the *Ruta de mejora escolar* (school improvement route).

At the same time, there is a long established tradition of oversight of school work by supervisors and other personnel external to the school, and their role has been largely associated with ensuring schools' compliance with regulations and other administrative tasks. However, in recent times they are supposed to play a more significant role in both pedagogical and administrative support tasks for the schools. For example, supervisors are expected to offer much more pedagogical support to schools through the recently created SATE (*Servicio de Asistencia Tecnica a la Escuela,* Technical Support Service for the School) or/and accompany the process of the school improvement route.

For schools and system evaluation, PLANEA includes two instruments: ELSEN and ELCE. ELSEN (*Evaluación de Logro Referida al Sistema Educativo Nacional,* Evaluation of the National System) is a sample-based standardised student assessment used for national (and sub-national) monitoring of student learning outcomes. Results are made public at the national and sub-national levels. It covers the last year of pre-school and grades 6, 9 and 12 (the terminal grades of basic education – primary, lower secondary and upper secondary), respectively also contemplating the subjects of Language and Communication and Mathematics first and then, from 2017, when other subjects such as Natural Sciences and Civic and Ethics Education were included. It is implemented by INEE every two years because this frequency is considered sufficient to monitor changes in the educational system. This instrument has the specific purpose to offer the education system information to guide policy design and undertake accountability at the system and sub-system level. The assessment is designed, applied and analysed by INEE.

ELCE (*Evaluación del Logro Referida a los Centros Escolares,* Evaluation of Schools) is a standardised student assessment that covers all schools in the country – with results made public at the school level (OECD, 2018[3]). SEP, in coordination with the state education authorities, applies ELCE each year to students in schools all over the country

in the final grades of primary, lower secondary and upper secondary (grades 6, 9 and 12) also including the subjects of Language and Communication and Mathematics. ELCE has the specific purpose to offer schools information to identify areas that need improvement and plan strategies to address them accordingly. The results of this instrument provide information on school's learning achievements of its students in six years (for the case of primary schools) in different aspects: i) results indicate what students achieved and/or fail to learn; ii) they also help to identify the curricular lines that the school community must strengthen from the first grade of primary education; and iii) provide elements to identify actions that can be implemented in order to achieve the expected learning. In addition, the information obtained from these mechanisms is expected to encourage the School Technical Council (CTE) and supervisors to focus more their efforts and attention on student learning. ELCE is also designed to facilitate the monitoring of the level effectiveness of each school to reach its goals over time; it allows each school to compare itself with the aggregate results of similar institutions and promotes collaboration between them to achieve better results.

Connection between system and school evaluations

ELSEN and ELCE are aligned, as their design departs from the same curricular analysis and they share contents, so both instruments report information about exactly the same type of learning outcomes. What's more, both instruments use the same measurement units (scales) and this allows analyses at both aggregated (national) level and that of individual schools. It should be noted that, as a requirement of the application method for each instrument, ELCE assessments are shorter than those of ELSEN. In addition, it has been decided that those schools where INEE applies ELSEN, ELCE is not applied; still, this has no impact for schools because they receive their results in the same format no matter in which instrument they participate.

ELCE is applied by the educational authorities and its results are analysed jointly by INEE and education authorities. SEP distributes results to each school, accompanied by elements that allow their proper contextualisation. In addition, students who are not selected in the sample have the option to present the exam online. The table below (Table 5.1) presents the distribution of roles in the design, application, analysis and use of the three different versions of PLANEA.

Table 5.1. Distribution of roles for PLANEA

	System evaluation: PLANEA SEN (ELSEN)	School evaluation: PLANEA Schools (ELCE)	Students assessment: (EDC)
Who develops the instrument	INEE	INEE	SEP and INEE
Who applies the instrument	INEE	SEP	Teachers
Who marks and analyse the results	INEE	SEP and INEE	Teachers
Who uses the results (mainly)	National and state authorities, the general public, INEE.	Schools	Teachers (classroom level) and schools

Source: OECD elaboration based on INEE (2015[4]).

Basic conditions of schools

The law establishes that INEE should design and conduct evaluations of the components, processes or outcomes of the national education system as well as of the attributes of learners, teachers and school authorities, and the characteristics of institutions, policies

and educational programmes. To undertake this mandate, INEE organises and implements the evaluation of basic conditions for teaching and learning (*Evaluación de Condiciones Básicas para la Enseñanza y el Aprendizaje*, ECEA) and its purpose is to generate relevant information to support decisions aimed at improving the conditions in which the country's schools operate (INEE, 2016[5]).

The conceptual model of ECEA defines the basic conditions necessary for the school to operate properly. This instrument synthesizes Mexican norms, as well as recommendations from different theoretical and research traditions, and establishes the standards or technical criteria for school operation in six domains: i) physical infrastructure; ii) furniture and basic equipment for teaching and learning; iii) educational support material; iv) staff working in schools; v) learning management; and vi) school organization.

The ECEA is conducted on a representative sample of all schools in the country and takes place every four years. The respondents of the questionnaire were (in the 2014 version): the school leaders; teachers from fourth, fifth and sixth grades; students from fourth, fifth and sixth grades; and one member of the board of the parents' association (INEE, 2018[6]).

School and system management

The School Technical Council (CTE) is a central piece in the administration of the schools. The CTE is a school body composed of the administrative and teaching staff, as well as all the educational actors directly involved to the teaching and learning processes in the school. It is responsibility of the CTE to analyse and make decisions to support and improve teaching practices for students to achieve the expected learning outcomes, so the school fulfils its mission. In other words, the CTE should make sure that education policy at school level truly reflects the mandate given by the Constitution. In addition, there are the Social Participation Councils (*Consejos Escolares de Participación Social en la Educación*, CEPSE) that include parent representatives and community spokespersons; and state education authorities that should collaborate with school improvement decision making and implementation. One of the fundamental actors in the provision of support for teachers in the school should be the Pedagogic and Technical Advisor, known by its acronym (ATP), which should the teaching staff that has complied with the requirements established by the General Law of the Teacher Professional Service; this advisor has the responsibility to provide teachers in-demand support and to play an active role to promote the improvement of education quality in the schools, based on their pedagogical and technical functions.

One major change, recently introduced in Mexico in a path to improve pedagogical and management support for schools, is the creation of the SATE, also discussed in other sections of this report. The general lines for the operation of this service were created in 2017. The main goals of SATE are: i) improve teaching practices; ii) identification of the training needs of teaching and administrative staff; iii) reinforce the operation and organisation of schools (through the use of the school improvement route mechanism previously mentioned); iv) support teachers in the practice of internal formative assessments; v) support teachers in the comprehension and use of standardised assessments for pedagogical purposes in the classroom; and vi) deliver counselling and technical pedagogical support for schools aiming at the improvement of student learning, teaching and school leadership practices, and school organization and operation.

As a medium step between schools and state government authorities, there is the Zone Technical Council (CTZ). The CTZ aims to be a collegial body constituted as the space for analysis, deliberation and decision making about the educational matters of the school zone. The CTZ constitutes a mechanism to support professional teacher development and schools improvement. CTZ tasks consist of undertaking collaborative work between school leaders and supervisions to review educational and learning outcomes and professional practices (both teaching and managerial activities), in order to make decisions and establish agreements to improve schools.

Information for decision making and administration

Between September and November 2013, INEGI (National Institute of Statistics and Geography) conducted a census called CEMABE (Census of Schools, Teachers and Students of Basic and Special Education). This census collected information about:

- teachers and students from pre-school, primary and secondary schools
- schools, teachers, and students in special education services
- teachers who carry out their activities in administrative offices, supervision, and teacher centres, among others.

At its completion, the census obtained information on 273 317 schools, 1 987 511 individuals working in these schools and their 23 667 973 students. This effort created a database that describes the Mexican basic education system entirely and serves as a baseline for any educational diagnosis (Box 5.1 presents CEMABE's basic results).

CEMABE was the first step in the construction of SIGED (System of Educational Information and Management) created by SEP. The potential use of this instrument should not be underestimated. When this system is completed, it will produce information that will allow knowing many aspects of the educational system and have them in a single platform. The instrument can be an essential tool for policy making in education at macro level but also to guide decisions at school level. In addition to administrative data, it will be possible to follow the school trajectory and records of each student in the Mexican educational system. In other words, education authorities will know, for each student, in which grade they are enrolled as well as their academic performance (SEP, 2015[7]).

In addition to SIGED, and shortly after the educational reform in 2012-2013, INEE created SIRE, a System of Strategic Information that collects, stores and organizes information of evaluation results, on physical, sociodemographic and economic context of the student population, as well as other information of the SNEE in a single platform. The objectives of SIRE are: i) strengthen the capacities for evaluating the quality, performance and results of the National Education System (SEN) in compulsory education; ii) support the implementation of the National Policy on Educational Evaluation (PNEE) within the framework of the National System of Educational Evaluation (SNEE); and iii) disseminate data and information about the results of educational evaluations.

Box 5.1. Result of the Census of Schools, Teachers and Students of Basic and Special Education (CEMABE), 2013

Some of the basic results of CEMABE (2013) indicate that:

- Of the 236 973 registered work centres, 87.6%, that is, 207 682, are basic and special education schools and 12.4% are other types of work centres.
- Of the total number of schools surveyed, 86.4% are public and 13.6% are private.
- By school level, the distribution of schools was as follows: preschool, 40.1%; primary, 42.5%; secondary school, 16.7%; and multi-service centres, 0.7%.
- Of the basic services, 51.6% of public schools have drainage, 69% with potable water availability, 87.2% with toilets and 88.8% with electricity. On the contrary, private schools almost meet 100% with the demand for these services.
- The total number of students in registered schools was 23 562 183. Of these, 18.3% belong to preschool, 55.8% to primary school, 25.6% to secondary school and 0.3% to multiple care centres.
- Registered staff reached the number of 1 949 105 individuals. Of these, 88.1% perform their jobs in basic education schools, 2% do so in work centres to support special education, and 9.9% in other types of work centres.
- Teaching staff in front of a group was initially estimated as 1 128 319 individuals. However, since this count refers to the number of individual classes (not teachers) this number was overestimated so the number of people that work in front of a group is estimated in about 978 118 individuals.

Source: Taken from FLACSO (2014[8]). For more detailed information please check http://cemabe.inegi.org.mx/.

Assessment

Mexico has put considerable effort to create and reinforce evaluation and assessment mechanisms that cover all the areas of the education system. Over the years, the OECD (OECD, 2013[1]) has built a comprehensive knowledge about the main general directions that should be followed in the design of evaluation and assessment practices in education policy, they are the following:

- *Take a holistic approach* so the various components of assessment and evaluation should form a coherent whole. This can generate synergies between components, avoid duplications and prevent consistency of objectives; Mexico has achieved considerable progress in this front with the organisation and operation of the National System of Educational Evaluation (SNEE).
- *Align evaluation and assessment with educational goals* so evaluation and assessment should serve and advance educational goals and student learning objectives. This involves aspects such as the alignment with the principles embedded in educational goals, designing fit-for-purpose evaluations and assessments, and ensuring a clear understanding of educational goals by school

agents; in this regard, PLANEA instruments (replacing EXCALE) are also a significant step taking by Mexico to reinforced formative student assessments.

- *Focus on improving classroom practices* because the point of evaluation and assessment is to improve classroom practice and student learning. With this in mind, all types of evaluation and assessment should have educational value and should have practical benefits for those who participate in them, especially students and teachers. The support material accompanying the EDC version of PLANEA (*Evaluación Diagnóstica Censal*) is a strong contribution to encourage the proper use of the results of standardised formative assessment in the classroom to improve student learning.
- *Avoid distortions* because of their role in providing accountability, evaluation and assessment, systems can distort how and what students are taught. For example, if teachers are judged largely on results from standardised student tests, they may "teach to the test", focusing solely on skills that are tested and giving less attention to students' wider developmental and educational needs. It is important to minimise these unwanted side-effects by, for example, using a broader range of approaches to evaluate the performance of schools and teachers. This is one of the areas where more effort should be done because until know, there is limited knowledge about to what extent standardised formative assessments are effectively and adequately used in Mexican classrooms.
- *Put students at the centre* because the fundamental purpose of evaluation and assessment is to improve student learning, students should be placed at the centre. They should be fully engaged with their learning and empowered to assess their own progress (which is also a key skill for lifelong learning). It is important, too, to monitor broader learning outcomes, including the development of critical thinking, social competencies, engagement with learning, and overall well-being. These are not amenable to easy measurement, which is also true of the wide range of factors that shape student learning outcomes. Thus, performance measures should be broad, not narrow, drawing on both quantitative and qualitative data as well as high-quality analysis. This is also an area where Mexico has made important progress, not just in terms of implementing solid standardised student assessments but also with the implementation of the new curriculum and associated marking scales (for more information please consult the chapter on the new educational model in this report).
- *Build capacity at all levels* because creating an effective evaluation and assessment framework requires capacity development at all levels of the education system. For example, teachers may need training in the use of formative assessment, school officials may need to upgrade their skills in managing data, and principals – who often focus mainly on administrative tasks – may need to reinforce their pedagogical leadership skills. In addition, a centralised effort may be needed to develop a knowledge base, tools and guidelines to assist evaluation and assessment activities. This is a second area that should be reinforced in the Mexican system, while policy design quality and expertise are strong at federal level, there is strong variation at state and school levels. As a result of these asymmetrical capacities, learning outcomes of students might experience substantial variations depending of their geographic location.

- *Manage local needs* because valuation and assessment frameworks need to find the right balance between consistently implementing central education goals and adapting to the particular needs of regions, districts and schools. This can involve setting down national parameters, but allowing flexible approaches within these to meet local needs. This dimension is closely connected with the previous one; in this regard, Mexico has achieved mixed results because on the one hand, the education reform has made an effort to provide more flexibility to schools in some aspects (like curriculum design) but autonomy levels, as well as resources and expertise to exercise it, remain insufficient at the moment (please refer to the equity chapter and introduction chapter in this report to understand the limited financial resources available to schools in Mexico).
- *Design successfully*, *build consensus* because to be designed successfully, evaluation and assessment frameworks should draw on informed policy diagnosis and best practice, which may require the use of pilots and experimentation. To be implemented successfully, a substantial effort should be made to build consensus among all stakeholders, who are more likely to accept change if they understand its rationale and potential usefulness. In this respect, the implementation and development of evaluation and assessment practices in Mexico (especially standardised assessments) has been a great achievement. These instruments are of enormous value to improve student learning in the classroom while offering solid information about the performance of schools and the system as a whole.

Overall, there is consensus that much of the efforts done by Mexico in recent years in the area of evaluation and assessment are positive, that much of the current practice takes a holistic approach, that looks to align assessment and evaluation practices with student learning goals and the improvement of classroom practices. This effort also puts the student at the centre (with formative assessment). At the same time, the evaluation and assessment system still needs to improve in trying to build local capacity to make sure that all the instruments are properly used at school level while making sure that all the information generated is also used to inform policy design and implementation to improve student learning. The following sections reflect on the main contributions of the current system.

An autonomous (and collaborative) evaluation and assessment system

Thanks to the collaboration between INEE, SEP and state authorities, Mexico has designed a complex and powerful evaluation and assessment in education – including assessment for students, appraisal for teachers, as well as evaluations for the system's policies and processes in place.

The National Institute for the Evaluation of Education (INEE) was created by presidential decree on August 8, 2002. Before being constituted as an autonomous body, INEE operated first, from 2002 to 2012, as a decentralized body of the Secretariat of Public Education and, then from 2012 to 2013, as a non-sectoral decentralised body. As established by the Law of the National Institute for the Evaluation of Education, INEE became an autonomous public body with legal identity and own assets. In this new phase, INEE's main task is to evaluate the quality, performance and results of the National Education System in pre-school, primary, secondary and high school education, this is, all the levels of compulsory education in Mexico. To comply with this mandate, INEE undertakes an ambitious agenda that covers three main areas: i) designs performance measurements for all the components, processes or outcomes of the education system; ii)

issues the guidelines to be followed by federal and state educational authorities to carry out the evaluation functions allocated to them; and iii) generates and disseminates information through its attributes to issue guidelines to build mechanisms and policies meant to contribute to improve quality and equity in education.

In terms of governance and building capacity, INEE coordinates the National System of Educational Evaluation (SNEE). In short time, INEE built all the legal architecture of the SNEE, and facilitated its operation. Among other initiatives, INEE developed the criteria for having representation at SNEE from all the relevant educational actors and organized the SNEE Conference (*Conferencia del SNEE*). The latter gave a structure for the various education authorities to exchange information and experience related to education evaluation. These sessions constitute crucial spaces for discussion and analysis, an outcome of which was the elaboration of the National Policy on Education Evaluation (*Política Nacional de Evaluación Educativa,* PNEE) (Miranda López, 2016[9]).

The content of the PNEE (National Policy on Education Evaluation) is prepared in a collaborative manner (Box 5.2). All education authorities and the INEE's Board of Directors discussed and agreed on the Policy through a series of Regional Dialogues for the Elaboration of the PNEE (*Diálogos Regionales para la Construcción del PNEE*). In this regard, it is worth noting that INEE has supported the different states in the construction of their specific evaluation strategies. This is extremely important, since subnational authorities are ultimately in charge of conducting evaluations. The State Programs for Educational Evaluation and Improvement (*Programas Estatales de Evaluación y Mejora Educativa,* PEEME) are the reference documents for each state to determine its initiatives in evaluation and how they contribute to the improvement of their compulsory education system. In particular, the evaluation and improvement programmes of the PEEME are elaborated according to a diagnosis of the most pressing issues that challenge the achievement of more education equity and quality in each state.

In general, INEE, in collaboration with SEP, has thus been fulfilling its responsibilities as the coordinator and driving force of the SNEE with success. Among the evaluations developed under the INEE's supervision, three are crucial to contribute to enhancing learning for all: the national student assessment (*Plan Nacional para la Evaluación de los Aprendizajes*, PLANEA), the evaluation of basic conditions for teaching and learning (*Evaluación de Condiciones Básicas para la Enseñanza y el Aprendizaje*, ECEA), and the new teacher appraisal system (a topic that can be found in chapter four, on teachers and schools, of this report).

A high-quality standardised instrument for formative student assessment, system evaluation and school monitoring: PLANEA

Mexico has made remarkable progress in establishing standardised student assessment mechanisms. INEE designed and coordinated the implementation of the National Plan for Learning Assessment (*Plan Nacional para la Evaluación de los Aprendizajes*, PLANEA) in collaboration with SEP and state authorities. PLANEA monitors student learning outcomes at different levels of the education system, including national and sub-national data and information on schools and individual students. PLANEA replaces the previous national assessment called ENLACE.

The National Plan for Learning Assessment (PLANEA) was put into operation by the Secretariat of Public Education (SEP), in coordination with the National Institute for the Evaluation of Education (INEE) and the educational authorities of the states, from the 2014-2015 school year. Its main purpose is to evaluate the performance of the National

Education System (SEN) regarding learning in compulsory education and provide feedback to all school communities in the country of primary, secondary and upper secondary education, with respect to the learning achieved by their students in two areas of competence: Language and Communication and Mathematics.

PLANEA classifies students' performance into four levels. Level I performance reflects insufficient knowledge of the subject tested and requires focused pedagogical intervention to give these students the opportunity to learn what they have not yet learned. Level II performance indicates that students have developed only some elementary knowledge and skills of the subjects tested and therefore intervention is needed for improvement. Those students performing at level III have a satisfactory knowledge of the subjects tested. Finally, level IV performance indicates an advanced knowledge level, and students in this category might be exposed to more challenging activities (more often than other students).

An especially valuable feature of PLANEA is that all its tests are produced with items calibrated to a single measurement scale. Thus, the pedagogical interventions suggested by ELSEN, ELCE and by EDC are based on the same learning objectives and, therefore, can be harmonized pedagogically. This is a relevant feature, produced by the reform of the SNEE that is particularly significant as a contribution of the new mechanisms. It should be noted that the scales used by EXCALE and ENLACE (former national student assessments) were not the same; therefore the pedagogical interpretation of the results was not always congruent. The harmonization of assessment scales is a significant step ahead and it is expected to make it easier for teachers and schools to use PLANEA results as a complementary tool to inform their pedagogical practice.

In this regard, INEE is committed to encouraging this practice and making sure the educational community understands how to link PLANEA to their regular pedagogical approaches. The Institute publishes calendar of the dates on which the assessments will be carried out, and the results are disclosed online (through the SIGED) and as an Institute's publication. What's more, SEP and INEE publish material aimed to inform teachers, school leaders and sector supervisors about the structure and specifications of PLANEA. For instance, SEP publishes every year a handbook for the implementation and analysis of EDC –also known as "PLANEA Diagnóstica" (see for instance the 2016 edition of the SEP/INEE manual (SEP/INEE, 2016[10]). The results are also sent to each school. Therefore, every school, in the years PLANEA is carried out, knows which learning objectives in reading and mathematics their students have reached. This is crucial information for the design of pedagogical interventions aiming at providing the learning of students.

Recent changes to PLANEA

In May 2018, INEE issued new guidelines for PLANEA, which replace the ones of December 2015. In this document only two versions of the standardised instrument are considered:

- PLANEA related to the Compulsory Education System (PLANEA SEN). Coordinated by INEE with the purpose of providing information to federal education authorities, state, decentralized agencies and the general public, on the achievement of key learning acquired by students of the National Education System (SEN).

- PLANEA for school communities (PLANEA Schools). Coordinated by the SEP with the purpose of offering information to teachers and school leaders on the achievement of key learning of their students.

Both modalities are complementary, they are applied in the same grades, to the students that conclude the sixth grade of primary, third of secondary and of the last year of upper secondary education and under very similar protocols, with the substantial difference that PLANEA SEN includes several application formats, in a matrix design, with the intention of evaluating an extensive set of learnings, while PLANEA Schools includes only one application format, which is common to all students evaluated. PLANEA SEN offers national, state and school stratified information from representative samples; on the other hand, PLANEA Schools provides information at the educational level, when it is applied in all the schools to a sample of students.

Items used in these two versions of PLANEA are multiple choice and are designed, marked and analysed by INEE, based on the identification of key learning aspects established in corresponding plans and study programmes as well as other curricular references (such as textbooks, materials for teachers, etc.). As of 2018, the evaluations of PLANEA SEN will alternately add Natural Sciences and Civic Education and Ethics. The results of the evaluation are presented in two formats:

- On a scale of 200 to 800 points, with an average of 500 points for the case of PLANEA SEN.
- Through four levels of achievement for PLANEA SEN and PLANEA Schools. These levels go from I to IV in progressive order, that is, the lowest level is I and the highest is IV.

Despite this change in name, PLANEA SEN and PLANEA Schools still offer the same differences and improvements relative to the previous assessment, ENLACE (see Table 5.1 for details about the difference between the two mechanisms). Finally, it should be noted that, despite being PLANEA SEN and PLANEA Schools the mechanisms in place since May 2018, SEP will continue developing the Diagnostic Census Assessment (EDC), which for 2019 is scheduled to be applied to students who start the 3rd and 5th primary education grades of all schools in the country.

Table 5.2. Main differences between ENLACE and PLANEA for Schools

Characteristic	ENLACE	PLANEA
Target population	Students who conclude: • 3rd, 4th, 5th and 6th grade of primary education; • 1st, 2nd and 3rd grade of upper secondary education; • Last year of upper secondary education.	Students who conclude: • 6th grade of primary education; • 3rd grade of lower secondary education; • Last year of upper secondary education.
Application coverage	• School census • Student census	• School census • Students sample
Periodicity	Annual	Triannual
Subjects tested	• Spanish • Mathematics • 3rd alternating subject (Civics, History and Sciences)	• Language and communication • Mathematics. • In PLANEA SEN an alternating subject (Natural Sciences and Civic and Ethical Training).
Test applied	A common test for all students.	• Six tests applied to the national sample of schools (PLANEA SEN); • A test common to all students in the rest of the schools.
Application in schools	• An Application Coordinator external to the school. • School teachers apply to a different group than the one they teach.	• An external application person (to the school) for each group.
Population tested to obtain national and sub-national results	All the students assessed.	National sample of schools (PLANEA SEN).
Rating method	Theory of response of 3 parameters per item.	Theory of response of 1 parameter per item (Rasch).
Scale of the results	• 4 levels. • Scale of 200-800 points, except in upper secondary education.	• 4 levels. • Scale of 200-800 points.
Release of results	Three months after the application.	Five to seven months after the application.

Source: OECD elaboration based on information provided by SEP.

Enriching knowledge for the administration of the education system

A significant amount of empirical evidence has been generated in five years since the establishment of the SNEE, both through INEE's evaluations and assessments and through the systematisation of administrative data. In addition, the contribution of CEMABE has been central to raise the amount of information on the system significantly. Having such detailed data at hand allows INEE, SEP, and state authorities in principle, to produce better informed and targeted policies and regulations.

In addition, INEE also organises and implements the evaluation of basic conditions for teaching and learning, ECEA (*Evaluación de Condiciones Básicas para la Enseñanza y el Aprendizaje*), its purpose is to generate the information needed to make decisions about improving the conditions in which schools operate. As described in a previous section of this chapter, the conceptual model of ECEA defines the basic conditions necessary for the school to guarantee proper conditions and environments for learning.

The first ECEA took place in November 2014 in 1,425 primary schools selected randomly in 31 federal entities, which allowed the results to be representative at the national level. ECEA has an implementation plan spread over 8 years, with two diagnostics per education level: primary schools were to be assessed in 2014 and again in

2019, upper secondary schools were scheduled in 2016 and 2020, preschools in 2017 and 2021, and lower secondary in 2018 and 2022 (INEE, 2016[11]). If the evaluations are carried out as planned, the information gathered can bring great support for the design and monitoring of Mexican education policies and should fed the SIRE system but also SIGED.

To share information to all the general public, INEE created the Integral System of Evaluation Results (*Sistema Integral de Resultados de las Evaluaciones*, SIRE) that collects, stores and organizes information of evaluation results, of the physical, sociodemographic and economic context as well as other information of the SNEE in a single platform. Its objectives are to strengthen the capacities for evaluating the quality, performance and results of the National Education System (SEN) in compulsory education; to support the implementation of the National Policy on Educational Evaluation (PNEE) within the framework of the National System of Educational Evaluation (SNEE); and to disseminate data and information about the results of educational evaluation in a transparent way. If it is kept up to date and publicised, an information system like the SIRE holds great potential as a tool to develop a culture of using evaluation information as a tool for improvement in education. In this sense, the INEE coordinates a number of initiatives to maintain, develop, and diffuse knowledge about the existence of the SIRE (INEE, 2018[12]) an instrument that, in turns, can be also linked to SIGED.

The Information and Management System of Education, SIGED (*Sistema de Información y Gestión Educativa*), was created to provide the national education system in Mexico with a unique information platform to allow authorities the planning, operation, administration and evaluation of the system while providing transparency and accountability. SIGED is an articulated body that covers processes, guidelines, norms, tools, actions and technological systems that allows gathering, administering, processing and distributing information about the national education system. The information is generated by the system's staff and authorities in order to support the processes of operation, administration and evaluation of the national education system (INEE, 2015[13]; Secretaría de Educación Pública (SEP), 2015[14]). Because of its considerable potential, SIGED must be seen as an extremely valuable tool for designing, implementing and monitoring education policy in Mexico.

SIGED organises information around four main domains that can be observed in the Education system data at school, state and national level: i) students: PLANEA results, although data on students is still scarce, due to the restrictions imposed by personal data protection legislation; ii) teachers: registers about their place of work, entry's date into the profession, and training and professional trajectory; iii) school: data captured from the specific instruments through SEP (such as *Formato 911*) and INIFED (National Institute for Physical Educational Infrastructure, *Instituto Nacional de la Infraestructura Física Educativa*) data; and iv) documentation from different areas of the education system (INEE, 2015[13]; Secretaría de Educación Pública (SEP), 2015[14]).

Finally, in an effort to provide the teaching profession with transparency and accountability, Mexico established the Fund for Education and Payroll Operating Expenses (*Fondo de Aportaciones para la Nómina Educativa y Gasto Operativo*, FONE). (INEE, 2015[13]). Created in 2013, FONE operates since January 1st 2015, as a tool for the Secretariat of Finances (SHCP) and the Secretariat of Education (SEP) to have centralised and transparent control (and reporting) on the educational payroll for all 32 states. What's more, FONE seeks to align teacher remunerations with the objectives and guidelines of

the Teacher Professional Service (Box 5.2 offers more information about the creation of FONE).

Box 5.2. Fund for Education and Payroll Operating Expenses (FONE)

Within the framework of the National Agreement for the Modernization of Basic Education (ANMEB), published in the Official Gazette of the Federation on May 19, 1992, the management and administration of basic education services was transferred to the states. In 1998, the reform of the Fiscal Coordination Law that created the Contribution Fund for Basic Education (FAEB) came into force, through which federal resources were transferred to the states.

During the years of operation of FAEB, a series of inconsistencies were detected in the administration of the fund, as well as questionable practices in matters of wage agreements such as the so-called "double negotiation". The double negotiation consisted in the existence of a national negotiation between the Secretariat of Public Education and the National Union of Education Workers (SNTE), followed by another negotiation at the local level between the state authorities and the local union sections of SNTE.

With the aim of ordering, making transparent and optimizing the resources for the payment of the educational payroll, in 2015, replacing the FAEB, the Contribution Fund for Payroll and Operating Expense (FONE) started its operations. The creation of FONE is based on the reform of the Fiscal Coordination Law published on December 9, 2013. FONE concentrates the federal education payroll in 31 of the 32 federal entities of the country (except Mexico City) that amounts to almost 360 billion pesos for 2018 that corresponds to just over one million workers, which represents about 45% of federal resources earmarked for education.

Source: OECD elaboration based on communication with SEP.

Strong capacity at national level and commendable efforts and school level

The capacity for evaluation and assessment at the federal level is impressive in Mexico. A large number (millions) of student assessments and teacher appraisals are processed every year in an effort that requires considerable logistical capacity but also high levels of technical expertise on the matter. According to previous OECD reports (Santiago et al., 2012[15]), this can be attributed to the extensive technical knowledge accumulated in institutions such as the National Assessment Centre for Higher Education (CENEVAL), expert methodological guidance from INEE, and strong policy and implementation capacity from SEP. Areas such as educational measurement, psychometrics, test development, validation of test items or scaling methods are well developed in the country.

At school level, there are also efforts to improve the competencies of school leaders in evaluation and assessment practices, more concretely in relation to making sure that meaningful school self-evaluation processes take place and that pedagogical guidance and coaching to teachers is effectively provided. These concerns are at the centre of recent policy developments in education in Mexico. In addition to the creation of SATE, the reinforcement of ATPs, the promotion of the school improvement route mechanism, and the replacement of ENLACE by PLANEA (with all its formative tools to support teachers at classroom level), are just some of the elements that are meant to improve evaluation

and assessment capacity at school level for self-evaluation. Overall, these instruments have been well designed but their effective implementation and positive impact will largely depend on the extent to which INEE, SEP, and state authorities succeed in working together to align resources and priorities to ensure that these instruments permeate to individual schools and establish themselves as part of the everyday life culture of each one of them in Mexico.

Identifying inequalities in the system

There is evidence that student results in the education system are strongly influenced by socioeconomic and cultural factors. Research undertaken by INEE based on national student assessments in basic education indicates that there is a strong and positive relationship between student performance and her family's socio-economic and cultural background. In particular it was identified that there is a considerable educational gap between students in the same grade that in some cases can reach up to four years of schooling, that to a great extent such gaps are the product of social inequalities that are reproduced in the school system and that, consequently, socioeconomic and cultural backgrounds explain the most of the variation in education performance among students in the country (Santiago et al., 2012[15]).

In recent years, there has been a strong effort from Mexico's authorities to incorporate the social context dimension to the assessment and evaluation of education performance in the system. In the publication of INEEs volume *Panorama Educativo de México* (Mexico's Education at a Glance), there is an entire section dedicated to the discussion of how the social context impacts and shapes education in Mexico. The indicators used are extracted and analysed from some INEGI's instruments (National Institute for Statistics and Geography) such as the National Census and the National Household Survey and they include elements such as: size and type of the location (rural, semi-urban, urban, and large urban); ethnicity if the individual speaks an indigenous language; afro-descendant (if the individual reports having a cultural and historic tie with the African culture); levels of marginalisation (low and high levels according to the classification of the National Population Council, CONAPO); minimum welfare line (that equals to the minimal monetary value of the monthly expenses in food for an individual); poverty level (either extreme poverty or moderate poverty as the classification established by CONEVAL); income quintile; employment and working type; and, finally, presence of mental or physical incapacity. All these context indicators combined with education data, are now used in Mexico to better identify inequalities in the education system. These efforts just began and their impact should be seen in the coming years if Mexican authorities are good use of them to properly inform and design policy instruments in the area.

Recommendations for future policy development and implementation

Mexico has made important progress in the consolidation of a comprehensive national system for education evaluation and assessment. This system is essential to support quality and equity in education as mandated by the Mexican Constitution (Article 3rd and General Education Law). In this regard, at an instrumental level, PLANEA is a major step towards making the assessment and evaluation system more formative and the actions undertaken by INEE and SEP to develop evaluation and assessment capacities at sub-national level are commendable. These include the national evaluation system (Sistema Nacional de Evaluación Educativa, SNEE) and the design of a national evaluation programme (Programa Nacional de Evaluación Educativa, PNEE). As part of this

strategy, Mexico has started a considerable effort to gather, analyse and disseminate evaluation and assessment information that is meant to guide policy design and support monitoring activity at macro level while providing schools and teachers valuable inputs to improve their operation and pedagogical practices.

To build on the progress made, Mexico might consider giving priority, attention and resources to the following: i) ensure that evaluation and assessment results are used to improve policies and practices; ii) use system evaluation to identify vulnerable student groups and effectively informs policy instruments to support them; iii) invest more in evaluation and assessment capacity development at state and school level; iv) encourage the formative use of the results of standardised student assessment to improve classroom practice; and v) use the mechanisms for educational information and management to their full potential at national, state and school levels.

Ensure that all evaluation and assessment information (like PLANEA results and all the information contained in SIRE) is used to improve policies and school practices

The accountability function of the evaluation and assessment system is essential to secure quality and equity in education as mandated by law, and Mexico has made substantial progress thanks to the coordination of INEE, SEP, state authorities and relevant stakeholders. Providing autonomy to INEE and giving it the coordination role of the SNEE are important steps to consolidate an independent and solid evaluation and assessment system in Mexico. In only a few years, INEE, SEP and state authorities have undertaken significant steps in the design and implementation of assessment, appraisal and evaluation tools for students, teachers, schools, and for the education system as a whole.

In this process, INEE has also contributed with the collection and processing of an impressive amount of information that can be vital for the further development of the education system in Mexico. It is important to give more support to the effective use of this evaluation and assessment information for the purpose of guiding the work and decisions made by policy makers, schools, teachers, students, families, unions, researchers and other stakeholders. Mexico might consider the following:

- **Support schools and state authorities to use the information generated by evaluation and assessment practices**. This can be done through promoting the use of evaluation and assessment information as indispensable evidence required in order to improve quality and equity in education with adequate policy making. More concretely, make sure that evaluation and assessment results and information are systematically used by schools and state authorities through bodies such as CTE, CTZ, CEPSE and SATE. A first step could be to provide further consideration to the communication of the aims of evaluation and assessment practices and all the information derived from them. In this regard, Mexico could reflect on the experience of Canada when trying to make more explicit the link between evaluation and assessment practices and pedagogical materials for teachers, or the experience of New Zealand in trying to communicate more clearly and effectively the role of assessment and evaluation practice as key elements to improve the whole education system (Box 5.3 presents the experience of Canada and New Zealand in more detail).

Box 5.3. Defining and communicating the purposes of assessment

In **Canada**, the Principles for Fair Student Assessment Practices for Education in Canada outline key elements for assessment practice that have served as foundations for teacher handbooks, board polices and departments of education policy documents on assessment and test development in all Canadian jurisdictions. The Principles were developed in response to what was perceived as assessment practices not deemed appropriate for Canadians students. These principles and guidelines intended for both assessment practitioners and policy makers identify the issues to be taken into account in order that assessment exercises to be deemed fair and equitable. The text acts both as a set of parameters and a handbook for assessment. The first part deals with developing and choosing methods for assessment, collecting assessment information, judging and scoring student performance, summarising and interpreting results, and reporting assessment findings. It is directed towards practising teachers and the application of assessment modes in the classroom setting. The second part is aimed at developers of external assessments such as jurisdictional ministry/department personnel, school boards/districts, and commercial test developers. It includes sections on developing and selecting methods for assessment, collecting and interpreting assessment information, informing students being assessed, and implementing mandated assessment programs (for more information, see: https://www.wcdsb.ca/wp-content/uploads/sites/36/2017/03/fairstudent.pdf).

The **New Zealand** Ministry of Education *Position Paper on Assessment* (2010) provides a formal statement of its vision for assessment. It describes what the assessment landscape should look like if assessment is to be used effectively to promote system-wide improvement within, and across, all layers of the schooling system. The paper places assessment firmly at the heart of effective teaching and learning. The key principles highlighted and explained in the paper are: the student is at the centre; the curriculum underpins assessment; building assessment capability is crucial to achieving improvement; an assessment capable system is an accountable system; a range of evidence drawn from multiple sources potentially enables a more accurate response; effective assessment is reliant on quality interactions and relationships. To support effective assessment practice at the school level, the Ministry of Education is also currently conducting an exercise which maps existing student assessment tools. The purpose is to align some of the assessment tools to the National Standards and provide an Assessment Resource Map to help school professionals select the appropriate assessment tool to fit their purpose.

Source: OECD (2013[11]), *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, OECD Reviews of Evaluation and Assessment in Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264190658-en.

- **Continue encouraging independent research using evaluation and assessment data and information and make sure that it is extensively disseminated**. Mexican authorities should encourage a larger number of studies to identify the explanatory factors of the evaluation and assessment results at system, school and student level and make sure that this research is disseminated and used at all levels of the education system. More concretely, authorities in Mexico should encourage more research on school self-evaluation methodologies and support for students, teachers and families. There are already efforts in this front, such as the

Sectoral Fund of Research for Education Evaluation, from the National Council of Science and Technology (CONACYT), that should be expanded and receive more attention (CONACYT-INEE, 2018[16]). Some international experience can be of help for Mexico in this task, for example, the education authority in Ontario, has a section of their website that outlines all the reports and a portal encouraging the use of their data for independent research (EQAO, 2018[17]). Another example can be found in New Zealand where the Ministry of Education tries to explain how rigorous evidence collected through assessment and evaluation mechanisms can help to make a big difference in the constructions of well-informed policy devices (more information about the general lines of this strategy can be found in Box 5.4).

Box 5.4. Support for evidence-based policy making in New Zealand

In **New Zealand**, the Ministry of Education runs an Iterative Best Evidence Synthesis programme to compile "trustworthy evidence about what works and what makes a bigger difference in education". A Strategy and System Performance Group within the Ministry has core responsibility for system evaluation and assessment and runs this programme. Evidence collected in this programme showing impact on student outcomes feeds into the development of education indicators that are used to evaluate the performance of the education system overall and the quality of education provided in individual schools. The policy significance of the Best Evidence Syntheses has been recognised by the International Academy of Education and the International Bureau of Education. Summaries of recent Best Evidence Syntheses are published on the UNESCO website, see *www.ibe.unesco.org/en/services/publications/educationalpractices.html*.

Source: OECD (2013[1]), *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, OECD Reviews of Evaluation and Assessment in Education, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264190658-en.

Use system evaluation to identify vulnerable student groups and to inform policy instruments to support them

System evaluation in Mexico has considerable potential to inform policies to tackle inequalities in education and monitor their progress. In this sense, it is important to reinforce the connection between evaluation evidence on the one hand and equity policy and mechanisms on the other. Within the overall evaluation and assessment framework, education system evaluation has arguably the strongest potential to pay attention to equity issues and to inform current policies and programmes (e.g. PROSPERA) on how to address these and to target support more effectively. In this domain, Mexico might consider the following:

- **Ensure and reinforce the monitoring of student performance across specific groups (e.g. by gender, socioeconomic or immigrant/cultural background, special needs, remote/rural location, as already established in INEE's *Panorama Educativo de México*).** To capture the performance of specific groups more properly, it could be reasonable to require that indicators of socioeconomic level, ethnicity and gender should always be collected as background information in standardised tests at school level. In addition to the monitoring exercise, it is

also important to always use these indicators to contextualize the results obtained in all assessment mechanisms (as it is already happening with PLANEA results).

- **Take action to develop solid instruments and programmes to tackle the challenges of disadvantage students.** Mexico has already substantial experience on the ground of social policy executed by other ministries (such as the Social Development Ministry, SEDESOL). So SEP, INEE and state authorities might continue incorporating some of the substantial experience accumulated in these programmes (for more information about them please consult the chapter on equity in this report) and adjust them for education purposes. For example, programmes like *Escuelas de Tiempo Completo* (Full-time Schools), *Convivencia Escolar* (School Environment), *Inclusión y Equidad Educativa* (Education Inclusiveness and Equity), among others, already include in their operation guidelines the undertaking of evaluation instruments to identify their impact on students, so this work should be reinforced.

Invest more in evaluation and assessment capacity development at state and school level

The development of an effective evaluation and assessment framework involves considerable investment in developing competencies and skills for evaluation and assessment at all levels. As the evaluation and assessment framework develops and gains coherence, an area for policy priority is consolidating efforts to improve the capacity for evaluation and assessment. As in Mexico the evaluation capability deficit is greater at the state levels, it is important that capacity building responds to the diverse needs of state educational authorities, supervision structures, school management and teachers.

The state education authorities have a key role to play in education system evaluation in Mexico. Given the dimensions of the Mexican education system, the possibilities for the central level to develop richer evaluation processes are limited. If evaluations are designed and implemented centrally by the national government, they are likely to be restricted to standardised student assessments and collections of data. In order to go beyond standardised instruments and promote the deeper study and analysis of school quality, it is important to count on entities that are closer to the school level. The management of education sub-systems by the state authorities offers the potential for closer monitoring of school practices than a fully centralised system would allow, while also providing opportunities to recognise regional realities and constraints.

The state authorities can also play a key role in supporting the creation of networks among municipalities, school zones and sectors, allowing professionals at the local level to meet with their peers. Such networks can be a platform to share experiences across schools, analyse results in national student assessments, discuss local approaches to school self-evaluation, teacher appraisal and student assessment and develop common projects, materials and approaches. They can also be a starting point to identify professional development needs at the local level and develop common strategies for capacity development. In some states, there is incipient activity by state evaluation institutes to organise regional meetings and workshops with a focus on building evaluation and assessment capacity. So, in order to create and consolidate capacity at state and school levels, Mexico might consider the following policy options:

- **Support the development of specific evaluation and assessment competencies.** As explained before, evaluation and assessment capacity and expertise at federal level is impressive but more work remains to be done to replicate similar

capacities at state and school levels across the country. A priority is to improve the competencies for evaluation of state educational authorities and staff in their supervision structures through the implementation and development of specific mechanisms and profiles such as SATE and ATPs. The objective would be the development of competencies to grant a solid basis for the creation of state-level evaluation structures such as an agency or an evaluation institute to take responsibility for school-level evaluation procedures, including school evaluation. This could benefit from INEE's contribution to the development of the associated training programmes. SATE is an effort to improve support for schools but there is a need to reinforce the educational leadership skills of school principals as their role in Mexico still retains a more traditional focus on administrative tasks, this should be a priority to be discussed in the school improvement route for each institution individually. The objective is that school leaders operate effective feedback, coaching and appraisal arrangements for their staff and effectively lead whole-school evaluation processes. Teachers could also benefit from a range of development opportunities. These include: improving skills for formative assessment including engaging students in assessment; enhancing the capacity to assess against the student learning objectives defined in the new educational model, including promoting collaborative work among teachers around student summative assessment; and improving the capacity to collect and analyse information for self-improvement.

- **Strengthen school self-evaluation taking advantage of the instruments already in place or recently designed.** The school improvement route mechanisms should be greatly reinforced, not just through external support (SATE) or incentives (federal programmes) but also in the development of internal capacity for schools to undertake self-evaluation more effectively. More concretely, this means that school self-evaluation efforts in Mexico should be clearly aligned with instruments like the Teachers Professional Service and programmes like *La Escuela al Centro* (see chapter four for more information about this programme) so schools might have all the resources and expertise needed to undertake self-evaluation activity more rigorously.

- **Ensure the participation of all levels of government in supporting the creation of evaluation and assessment capacities within schools.** At national level, INEE can play a very important role in this process through the Pedagogical Council of Education Evaluation (*Consejo Pedagógico de Evaluación Educativa*, CONPEE). This is a body that is part of INEE's structure, it is designed to collect points of view and recommendations from teachers and school leaders from all the different education levels about objectives, contents, consequences and use of evaluations and assessments to improve both the teaching and administrative practice within schools (INEE, 2018[18]). At the same time, SEP, in close coordination with state authorities, should make sure that adequate resources and expertise and channelled to improve evaluation and assessment capacities in schools. The example of Chile can be of interest (Box 5.5) as this country has made substantial progress in this area and Mexico can learn from its experience.

Box 5.5. School improvement in Chile

In Chile, legislation requires all school providers and schools to develop their own school educational project (*Proyecto Educativo Institucional*, PEI). In addition, Chile has encouraged schools to develop school improvement planning and self-evaluation with a number of different initiatives, namely the preferential school subsidy (SEP). School providers and schools receiving additional resources through this subsidy are required to develop school improvement plans (PME). To support schools in their school development and improvement planning, the Chilean education system provides schools and school providers with external technical-pedagogical support. Schools and school providers can call on public technical-pedagogical consultants (*Asesores Técnico-Pedagógicos*, ATP) or private advisory services (*Asesorías Técnicas Educativas*, ATE) to receive advice on a range of issues, such as improvement strategies and the implementation of their school improvement plan. With the introduction of the National Quality Assurance System in Education, the Ministry of Education has introduced a new school improvement support framework. This new support system for school improvement seeks to build the capacity of schools and school providers for self-improvement and to make better use of PEI and PME. To this end, it also seeks to establish PME as a tool that is more independent of the SEP and related accountability requirements. Another positive development is that thanks to targeted funding programmes in the form of the SEP and the programme of school integration (PIE), schools have additional resources to hire learning support staff that support teachers in their work and provide support for students within schools.

Source: Taken from Santiago et al. (2017[19]), *OECD Reviews of School Resources: Chile 2017*, OECD Reviews of School Resources, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264285637-en.

- **Reinforce collaboration between SEP and INEE in building capacity for evaluation and assessment at state and school level.** Providing autonomy to the INEE and positioning this institution as the coordination entity for the national evaluation system was a significant step in the consolidation of an independent and credible evaluation structure. At the same time, SEP has successfully continued with its leadership role in designing and helping states authorities implement education policy at large scale in Mexico. Still, to permeate and develop evaluation capacity and expertise at state and school level, SEP and INEE need to intensify their collaboration to go further in tackling the asymmetries in the system. Until now, SEP and INEE have been remarkable successful in their collaboration for the design and implementation of all PLANEA instruments (system, school and students). However, the large diversity and asymmetrical educational conditions of each individual state and school in the country call for a more intense level of collaboration between the two federal institutions so marked differences can be tackled with the support of adequate resources and expertise on the matter (see again the example of Chile in Box 5.5 about resource allocation for this purpose). Not all teachers, school leaders, schools and states are in the same condition to absorb, interpret and implement the tools and programmes produced by federal entities so collaboration between SEP and INEE should address compensatory measures for this type of issues.

Encourage the formative use of the results of PLANEA to improve school practice

Despite efforts made, it seems that the results of standardised student assessments are not systematically used for learning and general education enhancement at the classroom level. It is important to give more visibility and adjust (if needed) the pedagogical materials that accompany PLANEA to support teachers in the classroom. Information collected during the meetings of the OECD team in Mexico indicates that standardised assessments are not fully perceived as solid evidence about the learning outcomes of individual students, leading to some teachers and schools not using PLANEA for pedagogical purposes. This is a missed opportunity not just for schools or teachers but for the whole system. For example, PLANEA scores can be an indicator to measure to what extent the constitutional right to receive (quality) education has been accomplished and provide guidance about the specific needs of students in the classroom.

A number of reasons might explain the lack of use of PLANEA in some schools. For example, the numerical syntheses of student proficiency might receive the attention from teachers and school leaders in data dissemination processes, focusing less on the pedagogical information linked to these numbers. Thus, the data and information collected in the evaluations are used mainly for monitoring purposes. Also, it can be the case that teachers consider that if the student could not solve items in the exam, then the problem is with the test, considering that it is not appropriately contextualized for each student/school/region. Indeed, materials accompanying the reports of PLANEA results are meant to be contextualised and the tests are carefully prepared by pedagogical experts. Another potential explanation is related to distortion and unintended effects of using standardised assessments in classrooms. More concretely, some teachers and schools might be replacing their summative and even their own formative instruments by PLANEA instruments. In this sense, teachers do not fully develop their own professional and pedagogical potential and standardised formative assessment lose their aim in the classroom. In order to tackle this type of challenges, Mexico might consider the following:

- **Take action to disseminate the formative profile of PLANEA among all the relevant actors in the system.** The framework for such a dissemination effort should recognise not just the enormous technical improvement of standardised assessment instruments like PLANEA but also its strong formative profile, especially in relation to previous instruments like ENLACE. This dissemination effort should take place not only through federal channels like SEP and INEE but also through state level implementation actors like supervisors and heads of zone (through CTZs) and at school level through CTEs. Very important, the correct use of PLANEA results should be a priority in the school improvement route of those schools that are not doing so well and the school community should be informed about it (through CEPSEs). Therefore, the advantages of using PLANEA results to inform better teaching and learning practices should be at the centre of communication strategies with schools.
- **Ensure that all the instruments and actors around and within the school contribute to using standardised assessments as pedagogical tools**. These actors include SATE, ATPs, supervisors, school leaders, CTE and of course, teachers. Within schools, the place to undertake these discussions about students' results about how they will be reflected in the teaching practice and about how teachers will be supported in this task should take place at CTE meetings. These

discussions should be part of the school improvement route strategy. Very important, whatever decision is made inside the school, including the elaboration or adjustment of materials consequently prepared to adjust the pedagogy in the classroom and support teachers and corresponding monitoring mechanisms (and that should be aligned with other materials, such as the ones produced for PLANEA), should be done in close collaboration and consultation with all teachers so their professional development and engagement in the process are both reinforced. **Finally, please note that this report does not suggest to adapt or adjust pedagogical practice based on PLANEA results exclusively, the results of standardised evaluations should be only one of several inputs to design and adjust pedagogical practice, the only point of this recommendation is that PLANEA seems not to be used at its full potential if it is not considered part of these pedagogical discussions in all schools and classrooms.**

- **Explore the possibility of undertaking pedagogical support meetings based on PLANEA's results.** These meetings should be focused on providing the specific support needed to use PLANEA results more properly to improve teaching practice in the classroom. Specific support in these meetings might contemplate the dissemination of learning activities appropriate to the students of each level (according to their results). Conceptually these meetings should be the expression of a dialogue between student assessment and pedagogy, and its main building block is the learning objective tested by the standardised assessment. These meetings should also emphasise the use of the guidelines to help schools to reflect on the results of the evaluation. These instruments should be used by CTE with SATE help that in turn should be responsible to support these meetings in the school with the provision of all the relevant materials and advice. What's more, **these meetings could be considered a training activity for teachers in appraisal processes.** Somehow, this idea is already embedded in the Teachers Professional Service Law (articles 15, 16 and 17) but should be further developed and implemented in practice more systematically.
- **Make sure that PLANEA aligns well, technically, with the new curriculum**. Special attention should be granted to the introduction of novel domains such as those corresponding to socio-emotional skills. At the same time, it should be noted though that changing the test has implications with regards to measuring change over time – trends can only be measured on measures that remain the same. But it's important to strike the right balance between maintaining some ability to examine trends and ensuring that the tests are improved and follow changes in the context and curriculum.

Use the mechanisms for educational information and management to their full potential at national, state and school levels

Mexico has made substantial progress in terms of generating solid information and data on the system in only few years. With the census CEMABE in 2013, Mexico started a strong progressive path to produce rich information for decision making, monitoring and administration of the system. SIGED can play a prominent role as it has laid a strong basis for building and maintaining a solid knowledge of the education system, and tts use and impact on the education system has potential. SIGED aims at collecting information about the different aspects of the education system: students, teachers, schools and

documentation. In principle, it should be offering to each single member of the education community in Mexico rich information for decision making and improvement practices.

SIGED has two interfaces, one for the general public and one for educational authorities (with substantially more information). In the first case, a standard user from the general public, a student for example, should be able to consult her academic records and school trajectory. For educational authorities at all levels (national and states) SIGED will offer comprehensive information that will allow to compare and group information at school, state and federal level. In this sense, SIGED might be an excellent instrument to guide decisions inside schools during their discussions related to their Ruta de mejora (school improvement route). It is essential to continue SIGED's implementation and development path in order to help state and school authorities to provide solid information in a single platform. Without reliable information about the system, it is hard to monitor progress made at sub-national and school level and almost impossible to do so in a comparative perspective with other institutions. To complete the implementation of SIGED, Mexico might consider the following:

- **Continue investing resources to ensure SIGED completion, systematic updating and optimal operation.** This instrument has provided a strong foundation for building and maintaining a comprehensive knowledge of the education system. Its implementation process must be reinforced because it is of the utmost importance to benefit from a reliable information system and facilitate an easy access to important education data for both the federal and state authorities and schools themselves. The potential of SIGED is enormous not just as an information tool (that can be reinforced) but also as a real management tool for education policy monitoring and development.
- **Ensure that all the relevant actors in the system have access and make use of tools such as SIGED.** The value of all the information collected through different mechanisms in the evaluation and assessment system in Mexico is not just for accountability purposes but also for policy design and improvement. In this regard, SIGED has an enormous potential to be used at sub-national and school level to improve learning and administrative practices. In a single platform, school leaders, teachers and supervisors can obtain information about their schools, students and staff, they can compare this information against national indicators and schools of similar profiles. In addition, an important point to make is the need to treat/use the raw information provided by SIGED and put it in formats that will be useful to users (e.g. develop indicators of socio-economic context for individual schools; give individual schools the ability to compare themselves to schools with similar characteristics). Therefore, bodies at school level as CTE should be encouraged to systematically use SIGED to inform their instruments such as the school improvement route that is meant to identify specific priorities as well as the processes and metrics to achieve them.
- **Strengthen the use of data to inform policy development at state level.** While, indeed, large amounts of system-level information exist in Mexico, the key focus in the coming years should be on drawing from this information to develop strategies for the improvement of education at the state level (and SIGED can play a central role in this strategy). Further studies should focus on the key challenges that education policy makers, supervisors and local education professionals need to address in order to improve the quality and equity of education outcomes and provide examples of where this has been done

successfully. INEE and SEP should consult with key interlocutors at state level on how it can best report existing information in a format that best fits state policy maker needs. Such consultation may reveal limitations of existing information, but can feed into future plans to collect data that best suits local demands.

- **Put special emphasis on enhancing the use of data at the school level.** Further steps could also be taken to communicate results from the national monitoring system more effectively to encourage their use by different stakeholders. While Mexico is developing some good national information and management systems, (such as SIGED) their full potential should have an impact at the state and school level. To strengthen the use and impact of nationally available school data, SEP in collaboration with INEE should explore ways of presenting analyses in user-friendly ways, making sure that SIGED's interfaces (and those of other information and management platforms) and presentational approaches are understandable for non-technical users. In addition, to be helpful at the school level, it is important that analyses facilitate "fair" comparisons between schools. To this end, work could be undertaken to make sure that schools access to "value added" or "similar schools" comparisons, which help avoid the sometimes unhelpful effects of comparing schools with non-typical learner populations with crude national averages. National authorities in collaboration with state governments should also establish a development programme designed to substantially raise the awareness of information systems and the data they contain; this can be part of a broader communication strategy about the goals of assessment and evaluation practices, some of them mentioned already in this chapter. Efforts should be directed towards increasing the skills of school and local staff in the use and interpretation of their own data for school improvement. This should involve both training resources and development programmes working with groups of schools, higher education institutions and teacher education programmes. The state education departments and evaluation institutes, being closer to schools than the national level, should play the key role in engaging in meaningful professional dialogue with schools and supervisors based on the information available.

Notes

[1] Teacher appraisal mechanisms are not included in this chapter. For information about this topic please see the chapter on teachers and schools in this report.

[2] For information about the most recent changes in the versions of PLANEA (2018) please see the corresponding section "Recent changes in PLANEA" also in this chapter.

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Conclusion: Building strong foundations for quality and equity in Mexican schools

Education reform in context

Mexico has one of the largest and most complex education systems in the OECD, with almost 26 million students, 1.2 million teachers and 225 757 schools in basic education only (primary and lower secondary education). The national education system, led by the Secretariat of Public Education (SEP), decentralised to its 32 federal entities, must cater to the educational needs of a large and highly diverse population. For instance, more than one in five live in rural areas (21% of the total); a high number of students receive an indigenous education (more than 800 000 students) and speak more than 64 languages; and many attend multi-grade schools (43% of primary schools tending to more than 1,270 000 students). Fostering better and more equitable education outcomes that are not associated with students' socioeconomic background is crucial to building a productive, fair and cohesive society in Mexico in the future, where almost half of the population (45%) are under 25 years old.

Aware of the potential gains, Mexico has taken important steps to improve the coverage and quality of its education system **and is moving from a system that is driven by inputs and numbers towards one based on quality of education, and more focused on student learning** (see Box 1). To progress further on this path, it is important for the Mexican education system to continue investing efforts in strengthening the delivery of compulsory education in its schools to improve student learning.

This report, based on a request by the Mexican government in March 2018, presents an assessment of the country's recent education reforms in light of international evidence, with analysis on progress made, remaining challenges and possible next steps to achieve the consolidation of a system that delivers educational improvement.

Box 1. A synthetic view of Mexico's education reforms since 2013

- **Quality and equity in education.** Mexico has made commendable efforts to establish quality and equity as a guiding principle in education policymaking, building consensus for the signature of a political Pact for Education and enshrining the concept of quality with equity in the Law. Since 2013, the country invested to increase enrolment rates in early childhood education and care (ECEC) and upper secondary education, to support the most disadvantaged students financially and with targeted approaches, and to enhance educational infrastructure.
- **New curriculum**. Mexico introduced a new curriculum for compulsory education focused on ensuring that all students develop the knowledge, attitudes and skills required in the 21st century, including in socio-emotional skills, also introducing some curricular autonomy for schools.
- **Support for teachers and schools.** Several mechanisms have been designed to strengthen schools in delivering education and to support a teaching career that also relies on an external evaluation system for teachers. In particular, the Strategy of the School at the Centre (*La Escuela al Centro*), the Teacher Professional Service (*Servicio Profesional Docente, SPD*), and a school improvement support service (*Servicio de Asistencia Técnica a la Escuela*, SATE) aim at transforming schools into learning communities, and providing the tools for the education profession to identify their needs and progress in their careers.
- **Evaluation and assessment for system improvement.** Mexico has made significant progress in the creation and operation of a comprehensive national system for evaluation and assessment, with the establishment of INEE as an autonomous body, the development of the student assessment PLANEA and the construction of a national information system (SIGED).

Note: A detailed description of these reforms can be found in Chapter 1 of the report.

Mexico's current education policy

From an education system that prioritised governance and vested interests, where there was lack of transparency in a number of areas, such as teacher or school leader recruitment, or the number of educational staff working in the system, Mexico has been undertaking important reforms that have achieved much progress in a relatively short amount of time. From 2012-2013, the Mexican government made a series of commitments to improve the quality of compulsory education. A constitutional reform in early 2013 and subsequent legislation have:

- Made quality education (*educación de calidad*) a right for all Mexicans by including it in the Constitution.
- Made equity both a priority across the education system and a transversal principle in the new educational model and targeted programmes for specific population and indigenous groups.

- Introduced a new curricular reform based on the vision for the Mexican learner in the 21st century, looking towards the future. The curriculum includes knowledge, skills, values and attitudes, taking into account wellbeing and socio-emotional education, a balance that many education systems internationally are reflecting upon. The new reform also offers some degree of curricular autonomy.
- Focused on improving school environments for effective teaching and learning, upscaling full-time schools, defining minimum norms of operation for schools and introducing a new school improvement support service (*Servicio de Asistencia Técnica a la Escuela*, SATE).
- Created a teacher professional service based on merit that includes teachers, principals, supervisors and pedagogical support figures, and that has competency-based profiles and standards, with a career structure that includes clear entry, permanence and promotion mechanisms for the teaching profession.
- Provided constitutional autonomy and responsibility to the National Institute for Education Evaluation (*Instituto Nacional para la Evaluación de la Educación*, INEE) over the national evaluation system of Mexico's compulsory education system in 2012. Part of this has been the design of evaluation and assessment frameworks such as PLANEA that support schools and policy makers to ensure effective student learning and enhance the quality of education for all.
- Provided high levels of funding for the improvement of school infrastructure across the country, with a special focus on schools with the most pressing needs.

Internationally, education systems require continued policy efforts in areas that are essential for student learning: Focusing on the need to prioritise equity; providing learning environments that are fit for the 21st century and respond to students' needs; ensuring that schools are run and staffed by high quality professionals that are well supported; and designing evaluation and assessment frameworks that can support schools and policy makers can ensure effective student learning and enhance the quality of education for all. In Mexico, the education system has evolved in this direction by:

- creating consensus around a countrywide pact for education of quality for all, expressed in the legislation (Constitution and General Law of Education)
- looking at the future with a set of reforms that focus on 21st-century education that should provide Mexican students with the knowledge and skills to face the challenges of a changing society
- focusing on ways to help education professionals raise the quality of their practice by investing and bringing greater coherence in selection, training, evaluation and career development, and establishing a framework for accountability and improvement, moving away from the corporatist system in place in previous years
- enhancing transparency and accountability in the education system and rebalancing its governance by establishing the independence of a national education evaluation authority in charge of developing assessment tools to monitor educational progress
- demonstrating the capacity to design national policies, adapt them when needed at a very large scale, and to better serve millions of students and education professionals

- taking decisive steps in the construction of information and data management tools that should allow not only access to all the relevant information on the education system, as well as to serve as the basis for a more precise management of the entire system at all levels.

While progress has been made, many of these reforms need time to mature and flexibility to be adjusted as required to ensure schools deliver quality education for all students. In Mexico, like in many other countries, there is a considerable distance between national policymaking and the learning that happens in schools. SEP has to cater to the individual needs of a large number of schools, students and teachers across the country through their national policy making. This requires both substantial resources, capacity and support from state authorities, who have an important role to play as operators of the system, as well as education stakeholders across the country. In complex education systems such as Mexico, "implementation" is not only about executing the policy, but also about building and fine-tuning it collaboratively.

With an important set of reforms in place, Mexico needs to make sure that there is a balance between policy design and implementation on the ground. Following a large public investment, new potential reforms need to be carefully assessed to protect progress made, aligned with evidence of good practice and focusing on adjusting aspects that require improvement. The following sections present an analysis and recommendations on ways forward in terms of policy design and implementation.

Reflection for future policy development

Priority 1: Providing equity with quality in Mexican education

Mexico has succeeded in a range of areas to enhance the opportunities to learn for all students. The Constitutional reform has introduced the issue of quality and equity in education as a priority for education services, and further policies have laid a strong basis to progress. Furthermore, progress in equity has advanced on two fronts. In terms of system-level policies, Mexico has focused on expanding and improving enrolments in ECEC and upper secondary education, on aiming for transparency in overall funding; establishing basic conditions for all schools to comply with; and supporting the consolidation of all-day schools. In terms of targeted programmes, the NME introduced a Strategy for Equity and Inclusion in Education (*Estrategia para la Equidad y la Inclusion en la Educación*, 2017) aiming to build a coherent approach to the different existing equity programmes. Furthermore, several programmes and initiatives have targeted their attention and resources to specific vulnerable groups such as the full-day school programme, CONAFE's ABCD model in rural areas or indigenous education programmes by the DGEI. There has also been considerable investment in educational infrastructure across the country.

It is important to review these investments to ensure they are coherent and implemented to reach disadvantaged schools and students, while also enhancing quality. More concretely, Mexico might consider the following system level and targeted approaches to enhance equity: i) introduce educational and school funding formulas so resources are distributed equitably between schools; ii) guaranteeing that disadvantaged schools receive and retain adequately qualified education professionals; iii) monitoring the coherence and impact of targeted programmes; and iv) consolidating school infrastructure by continuing to invest in the maintenance of the physical environment.

Introduce educational and school funding formulas so resources are distributed equitably between schools

Allocating resources equitably means that the schools attended by socio-economically disadvantaged students are at least as well-resourced as the schools attended by more privileged students, to compensate for inequalities in the home environment. In general, the process for schools to obtain resources in Mexico is administratively complicated and does not allow for covering schools' immediate necessities. There is no budget allocation system for schools directly, yet they have expenses for school refurbishing and materials. Schools thus rely heavily on parental monthly contributions or the community members' own skills and resources for their daily necessities (replacement teachers, additional human or resources for disadvantaged students, paper, printer, cleaning and other material needs). This creates issues of both sustainability and equity across schools, and even within schools, as schools in more affluent communities are in a position to gather more resources. In addition, some dual shift schools may have different parental contributions – often the morning shift is thought to be of higher quality, therefore the children whose parents can pay a higher contribution tend to attend at the expenses of more disadvantaged students. Mexico could consider reviewing the funding mechanisms, to allow schools some leeway for their expenses. More concretely, Mexico could:

- **Review educational and school funding formulas so the distribution of federal funds can be more equitable between states and between schools.**
- **Monitor the reception and use of public resources in order to ensure transparency and accountability.**

Guarantee that disadvantaged schools attract and retain qualified education professionals

In Mexico, principals of disadvantaged schools report receiving fewer educational material and staff than advantaged schools. Mexico is among the PISA countries for which this difference is the largest. Evidence also shows that teachers in more vulnerable schools such as community and indigenous structures tend to be less trained, have less experience and less education than teachers in more privileged schools both in Mexico and in OECD countries in general. This is all the more so concerning since cross-country correlations show that gaps in student performance related to socio-economic status are wider when fewer qualified and experienced teachers operate in socio-economically disadvantaged schools, compared to advantaged schools.

One important area in which Mexico should embed equity as a guiding principle is in its allocation policy for the education workforce. Cross-country comparisons show that education policies ensuring that high and consistent teaching and learning standards are applied in across all classrooms. Countries can compensate for student disadvantage by investing more teacher resources and/or allocating better-qualified teachers to high-need schools. To avoid that good and excellent educators only teach in more privileged areas, Mexico could:

- **Provide incentives to encourage high quality teachers and school leaders to opt for rural and disadvantaged communities.**
- **Continue investing more generally in preparing education professionals, and including specialized training for teachers working in disadvantaged schools.**

Monitor the coherence and impact of targeted programmes

Mexico should continue its efforts to strengthen and bring coherence to the numerous student- and school-targeted programmes to enhance equity in the system. The overall effort towards more equitable education is showing some effectiveness, as Mexico has continuously improved equity over the past decade. The design of these policies is also well aligned with international evidence. Some of these programmes should be maintained and closely monitored to guarantee their continued effectiveness, including (but not limited to) the Full-day schooling programme (PETC), the Movement against school dropout (*Movimiento contra el abandono escolar*) and the CONAFE's successful ABCD model (*Aprendizaje Basado en la Colaboración y el Diálogo*). Cross-country comparisons show indeed that education policies that can foster improvements in equity and performance include targeting additional resources to schools with a high concentration of low-performing and disadvantaged students to keep them from falling behind.

These programmes are numerous; they sometimes target the same population or the same issues; subsequently, it is possible that they may overlap and reduce the efficiency of the overall strategy for equity. Based on these observations, Mexico should make sure the programmes targeted to support the most disadvantaged schools and students reach their targets, and that they actually bridge the gap in terms of learning and other educational outcomes (such as remaining in school or completing studies). In this area, Mexico could:

- **Monitor the impact and coherence of existing programmes for equity.**
- **Evaluate to what extent programmes to support disadvantaged students enable them to integrate and do well in the "regular" education system.**
- **Maintain and scale up the programmes that prove effective, such as the Full-day schooling programme (*Programa Escuela de Tiempo Completo*, PETC**).

Consolidate school infrastructure and continue with investment and maintenance of the physical environments

The scope of Mexico's recent investment in school infrastructure is remarkable. In order to reap full benefits from this much-needed support to physical environment, federal authorities should nonetheless enhance their investment strategy by prioritising their investment and securing sustainable sources of funding. To consolidate this effort, Mexico could:

- **Review carefully the ECIEN funding allocation approach to invest in and maintain its school infrastructure in a sustained way.**
- **Focus resources for infrastructure on those schools that do not reach the basic standards of safety as set up by INIFED.**
- **Find a balance between guaranteeing that all students have appropriate physical conditions to learn and stretching resources too thin across all schools**.

Priority 2: Providing 21st century learning to all students

Overall, Mexico's curriculum reform design aligns to best international practices, and to the vision the country set for its education system. The efforts to engage with stakeholders from diverse corners of the education system in a consultation to elaborate

the curriculum are commendable, and resulted in a high quality curriculum, while the education authorities proved extremely skilful at managing large-scale projects such as the production of new instructional material on a tight schedule.

The new curriculum will start being implemented sequentially from August 2018, which leaves time before its effects can be observed in the classroom and especially, on student learning. However, Mexico can already take some elements into account to overcome existing challenges which may put the success of this large-scale investment at risk. While some elements in the design of the curriculum could be refined or enhanced, **education authorities in Mexico should focus their efforts on providing all the support necessary to accompany students, educators and school communities as well as authorities at lower levels of government to take ownership of this new curriculum and implement it properly**.

To do so, SEP and its counterparts at the state level could consider providing support for teachers and schools in the short term and rethinking educator training for the long run. Although curricular autonomy was the only component that was piloted, authorities could take the time to evaluate pilot schools' experience with curricular autonomy (those who tested it during the school year 2017-2018) and to adjust the implementation process and/or the curriculum itself based on the lessons these schools learnt. In all cases, the Mexican administration should pay special attention to fine-tune the implementation of this curriculum, for it otherwise risks tiring its educational community, and losing its support. More concretely, Mexico might consider to take action in the following areas: i) support teachers and school leaders to take ownership of the new curriculum; and ii) respect the timing and collaboration required for effective curriculum implementation.

Prioritise investment in teachers' and school leaders' capacity to implement the new curriculum

The new curriculum is facing an education workforce that apparently considers it lacks the training and support to take ownership and effectively translate the curriculum into better learning. While on visit to Mexico, the OECD team was repeatedly told by teachers themselves, school leaders and education experts that school staff was ill-prepared to start teaching the new curriculum in September 2018, given the lack of effective training. These arguments were presented especially concerning socioemotional education.

Traditionally, across countries, curricula have tended to be designed outside of schools and provided to them as self-contained products through in-service teacher training. This created major gaps between the intended curriculum and the reality of what was implemented in most countries. Without proper attention, a new curriculum may not be implemented for a range of reasons: local stakeholders, including teachers may refuse it; the teaching staff may not know how to teach the new content because neither their initial nor continuous training prepared them for it; it may get dismissed in favour of the content that gets assessed through student evaluations. Similarly, Mexico should support more its teachers and school leaders in taking ownership of the new curriculum. For instance, Mexican authorities could:

- **Provide additional support at school level in the short term for teachers and school leaders to master the new curriculum and the new pedagogical approaches it demands.**
- **Implement the Technical Support Service to Schools (*Servicio de Asistencia Técnica a la Escuela,* SATE) aligned to the curricular reform in all schools.**

- **Rethink teacher and school leader training by building on the existing strategies for continuous professional development in the medium to long run.**

Give schools the time and agency required for effective curriculum implementation

Mexico adapted a number of curriculum design principles that were agreed upon internationally. Curricular autonomy was piloted in some schools during the year 2017-2018. Some conclusions were drawn about the conditions for success in the participating schools, but it remains unclear what actions were taken to reinforce schools' capacity to assume this autonomy for instance. Questions remain about who, inside schools, should be in charge of conducting the extra activities, and what can be achieved in regular schools, which only have half-an-hour a day reserved for these activities. Curricular autonomy offers some margins for professionals to innovate, but the benefit it can bring to students can be reduced if the options are too limited.

Curriculum design and change principles from international evidence and experience refer to processes and interactions that contribute to enact the curricular content, such as teacher agency, authenticity, interrelation, flexibility and engagement. While it is still too early in the implementation process to know whether some of these principles have been adopted, these can help guide the next stages of curriculum changes in Mexico as follows:

- **Allow more time for education stakeholders to test and adjust the curriculum.**
- **Give more agency and support to school actors and sub-national authorities in adapting and implementing the curriculum.**

Priority 3: Supporting teachers and schools

Mexico has made significant progress towards transforming schools into learning communities and implementing concrete efforts to introduce a professional teacher service. The School at the Centre strategy (*La Escuela al Centro*) was created by SEP to give coherence at the school level to Mexico's 2013 reform priorities, and to reorganise school support programmes accordingly. It aims to reduce the bureaucratic load for schools and guarantee that they have the skills and resources to foster active participation and collaboration within the school community, with the purpose to enhance educational outcomes. The strategy reflects Mexico's intention of building change and innovation capacity within schools and local governments as a key enabler to transform schools, supporting the development of a stronger teaching workforce and improving the education system. Principals, teachers and other pedagogical support staff such as Mexico's new school improvement support service (SATE) are active agents of this transformation with the schools.

At the same time, the Teacher Professional Service (*Servicio Profesional Docente*, SPD 2013) has established a framework for the educational profession, including teachers, school principals, vice-principals, coordinators, supervisors, inspectors, and technical pedagogical advisors (*asesores técnico-pedagógicos*, ATP). It sets out the basis for selection, induction, promotion and tenure possibilities, as well as for continuous professional training for educational staff. The SPD aims to guarantee knowledge and capacity for educational staff and to bring into a coherent whole several elements that

reward good performance and improvement, and provide incentives for both schools and individuals.

Still, there is scope to further develop both policies to ensure that they contribute to effectively support teachers and schools towards enhancing student learning. More concretely, Mexico might consider to take action in the following: i) strengthen leadership and school-level collaboration to enact the School at the Centre strategy; ii) promote the career perspective of the Teacher Professional Service ; iii) prioritise continuous professional development and SATE to grow education professionals' quality; and iv) keep adjusting the professional performance appraisal to deliver on both its formative and summative functions.

Strengthen leadership and school-level collaboration to enact the School at the Centre strategy (La Escuela al Centro)

Mexico should continue its efforts to enhance schools' leadership and capacity to make decisions, as it is essential for schools to be the improvement actors they need to be in the 21st century. To reinforce the efforts and achieve more effective school capacity, leadership, teaching practice and, in general, support quality and equity in education, Mexico could:

- **Keep sharpening the skills of school leaders, supervisors and support actors such as the ATPs.**
- **Strengthen professional collaboration within and between schools.**

Promote the career perspective of the Teacher Professional Service

The professional performance appraisal has focused a large share of the attention around the teaching profession, to the expense of other career items included in the Professional Teacher Service (SPD). To keep strengthening the professionalization of educational careers in Mexico it would be important to also focus on other components of the Professional Teacher Service that contribute to professionalization as essential for an education system to fulfil its mission. Mexico's education authorities should support further actions to show that the SPD is a coherent career structure beyond evaluation for education professionals. To this extent, relevant authorities should:

- **Ensure that the mentoring (*tutoría*) takes place for all new entrants in the teaching profession, as well as for new school leaders, supervisors and ATPs.**
- **Certify that new entrants from another career than education have pedagogical skills or have access to extra pedagogical training upon entry**.
- **Guarantee that the training and promotion components of the SPD are effectively implemented.**

Prioritise continuous professional development and SATE to grow education professionals' quality

Central authorities introduced a new national training strategy for teachers, school leaders, supervisors and advice and support staff, which allowed for training many. The SEP also led a large consultation among education professionals (92 882 respondents) to understand which training areas should be strengthened. While training has reached many through virtual platforms, interviews by the OECD team reveal a demand for training to

be better tailored to the schools and to their teachers' needs. This is consistent with the literature, which finds that the most effective training strategies contain a mix of modalities: online and in-person programmes, and courses outside of the schools with supervised project in the schools. It appears **that professional development opportunities have not yet evolved to meet the need for skills and knowledge update. The recent efforts to strengthen the national strategy for professional development must be acknowledged. However, the offer needs to improve in order to allow teachers, school leaders, support and advisory staff and supervisors to grow as professionals.** In this regard, it is important to ensure that teacher professional development elements form a coherent whole and are directed towards the improvement of classroom practices and student learning. In this area, Mexico could:

- **Enhance professional development at the school level via collaborative learning and the SATE**.
- **Balance the modules in the national and the state strategies for education personnel's development (*estrategias de formación docente)* between in-person, school-based and remote (online) options**.
- **Make sure offers for continuous professional development align and are clearly linked with the professional standards (*Perfil, parámetros e indicadores* (PPI) *para docentes y técnicos docents*, PPI *para personal con funciones de ATP* and PPI *para personal con funciones de dirección y de supervisión*), and with the knowledge and skills required by the new curriculum**.

Keep adjusting the professional performance appraisal to deliver on both its formative and summative functions

Appraisal of teachers –and of school professional in general- can contribute to improvement in educational outcomes by holding education professionals accountable (summative function) and by revealing their strengths and areas for professional progress (formative function) (OECD, 2010[1]). In both instances, performance appraisal is only a tool for educational improvement and should therefore be adjusted constantly to fulfil its role. In order to guarantee that professional performance appraisal fulfils its improvement role, Mexican authorities should:

- **Make sure the appraisal instruments are adequate to assess performance**.
- **Offer better-tailored support for education professionals after they receive the results, to update their knowledge and develop their professional skills**.
- **Maintain the summative function of the appraisal while making sure that the professionals that obtain unsatisfactory results have access to programmes that give them the opportunity to improve between appraisals**.

Priority 4: Focusing evaluation and assessment on schools and student learning

Mexico has made important progress in the consolidation of a comprehensive national system for education evaluation and assessment. This system is essential to support quality and equity in education as mandated by the Mexican Constitution (Article 3rd) and the General Education Law. In this regard, at instrumental level, PLANEA is a major step towards making the assessment and evaluation system more formative. In addition, the actions undertaken by INEE and SEP to develop evaluation and assessment capacities at

sub-national level are commendable. These include the national evaluation system (*Sistema Nacional de Evaluación Educativa, SNEE*) and the design of a national evaluation programme (*Programa Nacional de Evaluación Educativa, PNEE)*. As part of this strategy, Mexico has started a considerable effort to gather, analyse and disseminate evaluation and assessment information that is meant to guide policy design and to support monitoring activity at macro level while providing schools and teachers valuable inputs to improve their operation and pedagogical practices.

To build on the progress made, Mexico might consider giving priority, attention and resources to the following: i) ensure that evaluation and assessment information is used to improve policies and school practices; ii) use system evaluation to identify vulnerable student groups and to inform policy instruments to support them; iii) invest more in evaluation and assessment capacity development at state and school level; iv) encourage the formative use of the results of PLANEA to improve school practice; and v) use the mechanisms for educational information and management to their full potential at national, state and school levels.

Ensure that all evaluation and assessment information (like PLANEA results and information contained in SIRE) is used to improve policies and school practices

The accountability function of the evaluation and assessment system is essential to secure quality and equity in education as mandated by law, and Mexico has made substantial progress thanks to the coordination of INEE, SEP, state authorities and relevant stakeholders. Providing autonomy to INEE and giving it the coordination role of the SNEE are important steps to consolidate an independent and solid evaluation and assessment system in Mexico. In only a few years, INEE, SEP and state authorities have undertaken significant steps in the design and implementation of assessment, appraisal and evaluation tools for students, teachers, schools, and for the education system as a whole.

In this process, INEE has also contributed with the collection and processing of an impressive amount of information that can be vital for the further development of the education system in Mexico. It is important to give more support to the effective use of this evaluation and assessment information for the purpose of guiding the work and decisions made by policy makers, schools, teachers, students, families, unions, researchers and other stakeholders. Mexico might consider the following:

- **Support schools and state authorities to use the information generated by evaluation and assessment practices**.
- **Continue encouraging independent research using evaluation and assessment data and information and make sure that it is extensively disseminated.**

Use system evaluation to identify vulnerable student groups and to inform policy instruments to support them

System evaluation in Mexico has considerable potential to inform policies to tackle inequalities in education and monitor their progress. In this sense, it is important to reinforce the connection between evaluation evidence on the one hand and equity policy and mechanisms on the other. Within the overall evaluation and assessment framework, education system evaluation has arguably the strongest potential to pay attention to equity issues and to inform current policies and programmes (e.g. PROSPERA) on how to

address these and to target support more effectively. In this domain, Mexico might consider the following policy lines:

- **Ensure and reinforce the monitoring of student performance across specific groups (e.g. by gender, socioeconomic or immigrant/cultural background, special needs, remote/rural location, as already established in INEE's *Panorama Educativo de México*).**
- **Take action to develop solid instruments and programmes to tackle the challenges of disadvantage students.**

Invest more in evaluation and assessment capacity development at state and school level

A central priority is to consolidate efforts to improve the capacity for evaluation and assessment at state and school level. Evaluation and assessment capacity and expertise at federal level is impressive but more work remains to be done to develop capacities at state and school levels across the country. A priority is to improve the competencies for evaluation of state educational authorities and staff in their supervision structures through the implementation and development of specific mechanisms and profiles such as SATE and ATPs. In addition, investing in the educational leadership skills of school principals should be a priority. The objective is that school leaders operate effective feedback, coaching and appraisal arrangements for their staff and effectively lead whole-school evaluation processes. Teachers could also benefit from a range of development opportunities. These include: improving skills for formative assessment including engaging students in assessment; enhancing the capacity to assess against the student learning objectives defined in the new educational model, including promoting collaborative work among teachers around student summative assessment; and improving the capacity to collect and analyse information for self-improvement. In this regard, Mexico might consider the following:

- **Support the development of specific evaluation and assessment competencies.**
- **Strengthen school self-evaluation taking advantage of the instruments already in place or recently designed**.
- **Ensure the participation of all levels of government in supporting the creation of evaluation and assessment capacities within schools.**
- **Reinforce collaboration between SEP and INEE in building capacity for evaluation and assessment at state and school level.**

Encourage the formative use of the results of PLANEA to improve school practice

Despite efforts made, it seems that the results of standardised student assessments are not systematically used for learning and general education enhancement at the classroom level. It is important to give more visibility and adjust (if needed) the pedagogical materials that accompany PLANEA to support teachers in the classroom. Information collected during the meetings of the OECD team in Mexico indicates that standardised assessments are not fully perceived as solid evidence about the learning outcomes of individual students, leading to some teachers and schools not using PLANEA for pedagogical purposes. This is a missed opportunity not just for schools or teachers but for the whole system. For example, PLANEA scores can be an indicator to measure to what

extent the constitutional right to receive (quality) education has been accomplished and provide guidance about the specific needs of students in the classroom.

A number of reasons might explain the lack of use of PLANEA in some schools. For example, the numerical syntheses of student proficiency might receive the attention from teachers and school leaders in data dissemination processes, focusing less on the pedagogical information linked to these numbers. Thus, the data and information collected in the evaluations are used mainly for monitoring purposes. Also, it can be the case that teachers consider that if the student could not solve items in the exam, then the problem is with the test, considering that it is not appropriately contextualized for each student/school/region. Indeed, materials accompanying the reports of PLANEA results are meant to be contextualised and the tests are carefully prepared by pedagogical experts. Another potential explanation is related to distortion and unintended effects of using standardised assessments in classrooms. More concretely, some teachers and schools might be replacing their summative and even their own formative instruments by PLANEA instruments. In this sense, teachers do not fully develop their own professional and pedagogical potential and standardised formative assessment lose their aim in the classroom. In order to tackle this type of challenges, Mexico might consider the following:

- **Take action to disseminate the formative profile of PLANEA among all the relevant actors in the system.**
- **Ensure that all the instruments and actors around and within the school contribute to using standardised assessments as pedagogical tools.**
- **Explore the possibility of undertaking pedagogical support meetings based on PLANEA's results.**
- **Make sure that PLANEA aligns well, technically, with the new curriculum**.

Use the mechanisms for educational information and management to their full potential at national, state and school levels

Mexico has made substantial progress in terms of generating solid information and data on the system in only few years. With the census CEMABE in 2013, Mexico started a strong progressive path to produce rich information for decision making, monitoring and administration of the system. SIGED can play a prominent role as it has laid a strong basis for building and maintaining a solid knowledge of the education system, and tts use and impact on the education system has potential. SIGED aims at collecting information about the different aspects of the education system: students, teachers, schools and documentation. In principle, it should be offering to each single member of the education community in Mexico rich information for decision making and improvement practices.

SIGED has two interfaces, one for the general public and one for educational authorities (with substantially more information). In the first case, a standard user from the general public, a student for example, should be able to consult her academic records and school trajectory. For educational authorities at all levels (national and states) SIGED will offer comprehensive information that will allow to compare and group information at school, state and federal level. In this sense, SIGED might be an excellent instrument to guide decisions inside schools during their discussions related to their *Ruta de mejora* (school improvement route). It is essential to continue SIGED's implementation and development path in order to help state and school authorities to provide solid information in a single

platform. Without reliable information about the system, it is hard to monitor progress made at sub-national and school level and almost impossible to do so in a comparative perspective with other institutions. To complete the implementation of SIGED, Mexico might consider the following:

- **Continue investing resources to ensure SIGED completion, systematic updating and optimal operation.**
- **Ensure that all the relevant actors in the system have access and make use of tools such as SIGED.**
- **Strengthen the use of data to inform policy development at state level.**
- **Put special emphasis on enhancing the use of data at the school level.**

General considerations for implementation

At present, it is important for the new government to continue taking coherent action in education focusing on student learning, which is a priority for the Mexican population. This chapter has highlighted some of the policy progress and challenges that will be important for the country to tackle. In Mexico however, a complex governance system requires a focus on implementation, as reforms will not reach schools unless educational authorities tackle issues of effective implementation. From research and discussions with many stakeholders, this conclusion goes further and proposes a number of transversal insights.

Mexico has traditionally followed a top down implementation approach in public policy. With that approach, Mexico has demonstrated **its capacity to implement national policies and programmes** to a very large scale, for millions of students, teachers or principals in past years. The data on implementation of policies and programmes is impressive, from the numbers of schools that have received funding for investment in infrastructure, to the numbers of teachers that have gone through evaluation or initial selection or training programmes. Still, this top down approach has limits that might be reverted with a revisited implementation strategy, one that should reinforce inclusiveness, horizontality and collaboration, and that insists on the idea of putting learning and students at the centre. The following aspects offer a guide:

Reinforce the vision and goals of the reform

The education reform package initiated in 2012-2013 undertook a major step when the Mexican Constitution gave education policy the mandate of providing education of quality for all Mexicans. However, despite the consensus about the importance of improving education among the Mexican society it seems that the communication of the vision and goals of the education reform has not been as successful as desired. Mexico's authorities could revisit the communication instruments used until now. This communication strategy should reinforce the vision present in the new educational model, emphasizing the benefits that recent changes in education policies might bring to children, teachers and school communities. Communication has been carried out through social media, press and television, but different communication approaches should be defined depending on target audiences, with key messages and channels for effective diffusion.

Promote stakeholder engagement

Changes in education policy require very strong stakeholder engagement. On the one hand, teachers and students in Mexico undertake their activities under very demanding conditions in most of the cases so it is essential that teachers, students and schools, as a group, understand the new mechanisms as a support tool for their work in the classroom and the school. On the other hand, important and visible groups and institutions have been also present in the debate about education policy in Mexico. Their opinions and contributions to the debate have been essential not just in the creation of the system, but also in the adjustment made in past years and even in the current discussion about a radical transformation or extinction of the system. The current education reform package was the result of the broad political and social pact that took place in 2012. However, this type of mechanisms cannot be used only at the beginning but should be a regular part of the process of monitoring and revising education policy. Obviously, the kind of pact that was undertaken in 2012 cannot be re-edited regularly, given the enormous political and social energy that it consumes, but other institutional models can be explored in order to make sure that all stakeholders feel included and that are consulted regularly.

Whatever the form of these consultations and participatory mechanisms, they should be including actors beyond SEP and INEE, such as teacher unions (SNTE taking into account its plurality), teachers and school leaders at school level, the subnational authorities in the National Council of Educational Authorities *(Consejo Nacional de Autoridades Educativas*, CONAEDU), at national and regional level, the Council for Social Participation in Education (*Consejo de Participación Social en la Educación*, CONAPASE), and a range of non-governmental associations and parents' associations, including those who stand a critical voice about the current reform.

Take the context into consideration

For implementation to take place adequately, a good balance of attributes is required between the federal government and states authorities. Furthermore, to make sure that implementation occurs at adequate levels in all the country, asymmetries across regions should be taking into account. Currently, there is a clear normative and operative division of responsibilities between SEP and states authorities. In some cases, some state governments have the resources and expertise to undertake the changes that the education reform imply but in some others is not possible. SEP's bureaucratic organisation may be costly and difficult to articulate across Mexico's large geography and the pace of reforms may be high. To ensure adequate contexts for effective education policies, governance can be rebalanced, distributing education management attributions clearly to the different government levels. Similar dichotomy and challenges can be found between the normative functions in evaluation assigned to INEE and the operative function of SEP in this regard.

Revising responsibilities and accountabilities of the federal and state education secretariats, and between institutions of the same level of government (such as SEP and INEE) can result in more transparency in education policy overall. With the current unfinished decentralisation, implementation cannot be effective across all states in Mexico if the obvious asymmetries across the 32 entities are not considered. At the lower levels of management, supervision and school leadership throughout the system is essential, and investments for these professionals to be able to implement reforms are key to secure that evaluations and the information that they provide, can be effectively translated into better pedagogical practices and learning experiences for students.

Secure enough resources

Implementation often requires significantly more resources and expertise that policy design. Currently, low levels of expenditure per student and unclear resource allocations to schools are challenging, as there needs to be a minimum for schools to function, for inequalities to be tackled effectively and for improvement to happen across the country. Mexico can consider resource allocation to schools more clearly, looking into international relevant practice and with the appropriate accountability mechanisms to ensure expenditures in schools.

Revise the strategy

In sum, given the dimensions of the country, the time, the engagement of the states and of many stakeholders involved, implementation mechanisms should be revised regularly. The vision of the education reform in Mexico oriented to pursuing quality education for all should be reinforced and clearly communicated to Mexican society and policies aligned to this objective. In light of the upcoming changes in the public administration in Mexico, it is extremely important to keep the Constitutional mandate of providing quality education for all.

Good and well-intentioned policy design has only limited possibilities to succeed if there is no strong engagement from stakeholders (teachers, school leaders, students, parents, teacher unions and organisations of the civil society), if public administration does not make the adjustments needed to correct the asymmetries between the design and the implementation of policies and secures enough resources for these processes. In this regard, all the merits of the recent education reform package in Mexico require careful support with an inclusive and resourceful implementation process.

Annex A. OECD team members

External experts

MARLENE GRAS is an international consultant in education, public policy and youth development. She specialises in the design and review of education programmes for public policy and corporate social responsibility, as well as in the areas of school management, teacher training, active learning pedagogies and STEM, among other topics. Marlene has designed several education programmes that have been implemented in Argentina, Brasil, Colombia, Romania, United States and Uruguay. She worked as an analyst for the OECD Directorate for Education and Skills and with UNICEF and CSOs on school. She studied education and development at Anahuac University, and holds a Master's degree in Comparative International Education from the University of Stockholm, Sweden.

JOSE FRANCISCO SOARES is a Brazilian professor and former president of the National Institute of Educational Studies and Research "Anísio Teixeira" (INEP). Prof. Soares graduated in Mathematics from the Federal University of Minas Gerais (UFMG); he holds a Master's degree and a PhD in Statistics from the National Institute of Pure and Applied Mathematics (IMPA), and a PhD from the University of Wisconsin-Madison. Prof. Soares also holds a Post-doctorate degree in Education from the University of Michigan. Prof. Soares received the "Bunge Foundation Award" for his work in the area of educational evaluation in 2012 in the category "Life and Work".

OECD analysts

BEATRIZ PONT is a senior education policy analyst at the OECD Directorate for Education and Skills, with extensive experience in education policy reform internationally. She currently leads the OECD Implementing Education Policies team and recently led the comparative series on education reforms Education Policy Outlook. She has specialised in various areas of education policy and reform, including equity and quality in education, school leadership, adult learning and adult skills. She has also worked with individual countries such as Greece, Japan, Mexico, Norway, Sweden or United Kingdom (Wales) in their school improvement reform efforts.

Previously, Beatriz was a researcher on education and social policies in the Economic and Social Council of the Government of Spain and also worked for Andersen Consulting (Accenture). She studied Political Science at Pitzer College, Claremont, California, holds a Master's degree in International Relations from Columbia University and a PhD from the Complutense University, Madrid. She has been a research fellow at the Institute of Social Sciences (Tokyo University) and at the Laboratory for Interdisciplinary Evaluation of Public Policies (LIEPP, Science Po, Paris). She has an honorary doctorate from Sheffield Hallam University.

JOSE-LUIS ALVAREZ-GALVAN is project coordinator and policy analyst in the OECD Implementing Education Policies team. Previously, José-Luis worked as project coordinator in both the Higher Education and the OECD National Skills Strategy teams, being responsible for the projects for Mexico and Peru. José-Luis joined the Directorate of Education and Skills to contribute to the analysis of vocational education and training policies being the main author of the reports for Costa Rica, Egypt, Kazakhstan and Northern Ireland; co-author of the reports for Denmark, South Africa and Canada; and part of the research team for the reports of England and the Netherlands.

José-Luis has written two books, published numerous articles and delivered lectures on a wide range of topics in public policy. He holds a Bachelor's degree from the National Autonomous University of Mexico (UNAM), a Master's degree from the University of Massachusetts, and a PhD from the London School of Economics (LSE). José Luis has taught at UNAM, Brunel University (United Kingdom) and the LSE.

ROMANE VIENNET is a policy consultant in the OECD Implementing Education Policies team. She holds a Bachelor's degree in political science and economics and a Master's degree in International Affairs from Sciences Po Paris. She has worked previously as a social impact analyst in France, and as a research assistant in behavioural economics projects with Pr. Arnab Basu of the Dyson School of Applied Economics and Management in Cornell University, New York. Her research interests include education policy implementation and change management (especially with respect to public policies).

Annex B. Meetings and interviews conducted by the OECD team

School visits and interviews in federal entities

Mexico City

Visit to a technological high school: **Centre for Technological Studies in the Industry and Services no. 5**

Visit to a general high school: *Colegio de Bachilleres* No. 4

- 2 school zone supervisors
- School supervisor
- School leader

Complementary meeting with educators and members of the school communities

- 3 school zone supervisors
- 5 school leaders
- 5 teachers
- 2 Technical and Pedagogical Advisors (ATPs)

State Education Authorities

- General Director of Normal Education (initial teacher training) and Teacher Actualization (DGENAM): Mtra. María Luisa Gordillo Díaz

State of Morelos

Visit to a primary school

- School supervisor
- School leader
- 3 teachers
- 3 parents
- 2 students

Visit to a tele-secondary school

- School supervisor
- School leader
- 3 teachers

- 2 Technical Pedagogical Advisors (ATPs)
- 4 parents
- 3 students

Complementary meetings

- Governor of Morelos: Graco Ramírez Garrido Abreu
- State Secretary of Public Education: Lic. Beatriz Ramírez Velásquez
- SEP Delegate in Morelos: Dr. Alejandro Pacheco Gómez
- General Director of the Institute of Basic Education of the State of Morelos: Lic. Yanely Fontes Pérez
- General Director of the State Institute of Education Infrastructure of Morelos: Ing. Alejandra Villareal Villareal
- 3 Members of the Council of Social Participation of the Town of Cuernavaca

State of Puebla

Visit to a primary school

- School leader
- Teachers
- Parents

Visit to a secondary school

- School leader
- Teachers
- Parents

Complementary meetings

- State Secretary of Public Education: Ignacio Alvízar Linares
- Sub-Secretary of Compulsory Education: Álvaro Álvarez Barragán
- Academic Advisor of the Sub-Secretariat of Compulsory Education: Norberto Cervantes Contreras
- Director of the School Technical Assistance Service (SATE): Osvaldo Cuautle Reyes
- Coordinator of the Programme for Strengthening Education Quality: Montserrat Avilés Santos
- Coordinator of the Programme Full-Day Schooling (ETC): Itizan Sorel Montoya Gaxiola
- Coordinator of the National Programme for Coexistence in Schools: Wendy Salvador Morales

Interviews within the Secretariat of Public Education (SEP)

Secretary of Public Education: Lic. Otto Granados Roldán

Coordinator of the Secretary's advisors: Mtro. Emiliano González Blanco Bernal

General Coordinator of @prende.mx: Mtra. María Cristina Cárdenas Peralta

Chief Cabinet Officer: Mtro. Alejandro Pérez Corzo

Undersecretary of Planning, Evaluation and Coordination within the Ministry of Education: Lic. Antonio Ávila Díaz

General Director of Education Planning, Programming and Statistics: Mtro. Marco Alejandro Calderón Argomedo

General Director of Policy Evaluation: Dr. Roberto Peña Reséndiz

General Director of Accreditation, Incorporation and Revalidation: Mtra. Marisela Corres Santana

General Director of the System of Education Information and Management (SIGED): C.P. Jorge Quiroz Téllez

General Director of the Administration System of Federalized Education Payroll (DGSANEF): Dr. Héctor Pérez Galindo

National Coordinator of the Teacher Professional Service (CNSPD): Lic. Ana María Aceves Estrada

Coordinator of advisors: Mtra. Marlenne Mendoza González

General Coordinator of Sectorial Communication, Management and Information: Lic. Guillermo Zarate Guerrero

Director of Programme Monitoring and Evaluation: Mtra. Daniela Rocha González

Chief Cabinet Officer: Mtro. Sergio González Serna

Undersecretary Executive Assistant: Mtra Carla Delgado Chiaberto

Undersecretary of Basic Education: Mtro. Javier Treviño Cantú

General Director of Teacher Continuous Training, Actualization and Professional Development in Basic Education (DGFC): Mtro. José Martín Farías Maldonado

General Director of Curriculum Development (DGDC): Mtra. Elisa Bonilla Rius

General Director of Indigenous Education (DGEI): Dra. Rosalinda Morales Garza

General Director of the National Council for Education Development (CONAFE): Mtro Enrique Torres Rivera

General Director of the National Institute for Adult Education (INEA): Lic. Gerardo Molina Álvarez

Director of Curriculum Reinforcement for Personal and Social Development in Basic Education: Mtra. Gabriela Tamez Hidalgo

General Director of Educational Material (DGME): Lic. Aurora Saavedra Solá

General Director of the National Commission of Free Textbooks (CONALITEG): Dr. Arturo José Ancona García López

Director of Norms and Standards for Learning and the Pedagogical Process: Lic. Ernesto Manuel Espinosa Asuar

Technical Secretary to the National Executive Council "the School at the Centre" and Acting General Direction of Education Management and Development (DGDGE): Mtro. Pedro Velasco Sodi

Sub-Secretary of Upper Secondary Education: Dra. Sylvia B. Ortega Salazar

Coordinator of the advisors: Lic. Juan Martínez de la Calle

Sectorial Coordinator for Academic Development (COSDAC): Mtra. Rosario Nolasco Fonseca

Sub-Secretary of Higher Education: Dr. Rodolfo Tuirán Gutiérrez

General Director of Higher Education for Education Professionals (DGESPE): Dr. Mario Chávez Campos

Public agencies and councils

General Director of the National Institute for Physical Infrastructure in Education (INIFED): Lic. Héctor Gutiérrez de la Garza

Governing Board members of the National Institute for Education Evaluation (INEE):

- Mtro. Gilberto Guevara Niebla
- Dr. Bernardo Naranjo Piñera
- Mtra Sylvia Schmelkes del Valle

President of the National Council of Social Participation in Education (CONAPASE): Lic. Carlos Mancera Corcuera

President of the National Council of the Social Alliance for Quality and Equity in Education (CSCEE): Dr. Raúl Medina Mora Icaza

Congressional representatives

President of the Commission on Public Education and Education Services: Dip. Hortensia Aragón Castillo

Secretary of the Commission on Public Education and Education Services: Dip. Adriana del Pilar Ortiz Lanz

President of the Commission on Education: Sen. Juan Carlos Romero Hicks

National Union of Education Workers (SNTE)

General Director of the National System for Professional Development (SINADEP): Prof. Jorge Antonio Alfaro Rivera

Coordinator of the Council for International Relations: Profa. María Antonieta García Lascurain

Technical Secretary in the General Secretariat: Profa. Juana Imelda Infante Arratia

Non-governmental organisations

Director of Education and Civic Innovation in the Mexican Institute for Competitiveness A.C. (IMCO): Mtra, Alexandra Zapata Hojel

Director of Investigation in Mexicanos Primero: Mtra. Jennifer O'Donoghue

Scholars and experts

Dr. Sergio Cárdenas Denham: General Director of the Centre for Regional Cooperation for Adult Education in Latin America and the Caribbean (CREFAL)

Dra. Gloria del Castillo Alemán: Research Professor in the Latinamerican School of Social Sciences (FLACSO) –Mexico

Dr. Carlos Elizondo Mayer-Serra: Research Professor in the School of Government and Public Transformation at the Monterrey Technological Institute

Mtro. Lorenzo Gómez Morin Fuentes: Research Professor and Coordinator of the Education Policy and Management branch in the Latinamerican School of Social Sciences (FLACSO) –Mexico

Dra. Blanca Heredia Rubio: General Coordinator of the Interdisciplinary Programme on Education Policy and Practices of the Centre for Economic Investigation and Studies

Dr. Rafael de Hoyos Navarro: Lead Economist in the Education unit for Latin America and the Caribbean of the World Bank

Dra. María de Ibarrola: Researcher in Education Science

Dr. Carlos Ornelas Navarro: Research Professor in the Autonomous Metropolitan University (UAM) –Xochimilco campus

Dra. Claudia A. Santizo Rodall: Research Professor in the Autonomous Metropolitan University

Dra. Margarita Zorilla Fierro: Research Professor in the Autonomous University of Aguascualientes

Informal meetings

The OECD team carried out other informal meetings and conference calls with academics, experts, and education stakeholders.