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Education and Training



TVET Country Profile

MEXICO



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Contents

Statistics.....	3
1. TVET systems	5
2. TVET strategy and key policy documents.....	8
4. TVET teachers and trainers	11
5. Qualification system and quality assurance	11
6. Current reforms and policy discussion.....	12
7. References and further reading	13

TVETipedia Glossary

In case of further clarification and definitions of terms contained herein, please refer to UNESCO-UNEVOC’s online TVETipedia Glossary, which provides definitions and background information from various trustworthy sources on terms commonly used in the area of technical and vocational education and training. Find out more at www.unevoc.unesco.org/l/68.

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UNESCO-UNEVOC TVET Country Profiles

To find similar information on other countries, please visit the UNESCO-UNEVOC World TVET Database at www.unevoc.unesco.org/l/589.

Statistics¹

General information

Category	Indicator	Statistics (2016)
Demographic	Total population (in thousands)	128,632
	Population growth	1.3%
	Median age of population ²	27.5
	Population aged 15-24 years (in thousands)	23,395.1

Socio-economic	GDP growth (annual %)	2.5%
	GDP per capita (current US\$)	9,005
	Unemployment rate (%) ³	4% (2016)
	Youth literacy rate, population 15-24 years, both sexes (%)	98.9%

Participation in education by level and by programme orientation (2014)

Category		Gross enrolment ratio (%)		Percentage of students who are female (%)	
Primary education (ISCED 1)		103.4%		48.9%	
Secondary education, all programmes	Lower secondary (ISCED 2)	90.6%	115.5%	50.8%	51.2%
	Upper secondary (ISCED 3)		65.5%		50.1%
Tertiary education, all programmes (ISCED 5-8)		29.9%		49.4%	

Category		Percentage of students enrolled in vocational programmes, both sexes (%)		Percentage of students in vocational education who are female (%)	
Secondary education, all programmes	Lower secondary (ISCED 2)	16.6% (2012)	20.9%	56.3% (2012)	57.6%
	Upper secondary (ISCED 3)		8.8% (2012)		46.9% (2012)

Indicator	Both sexes (%)	Percentage of students who are female (%)
Percentage of students in tertiary education enrolled in short cycle education (ISCED 5)	4.3%	38.7%

Education finance

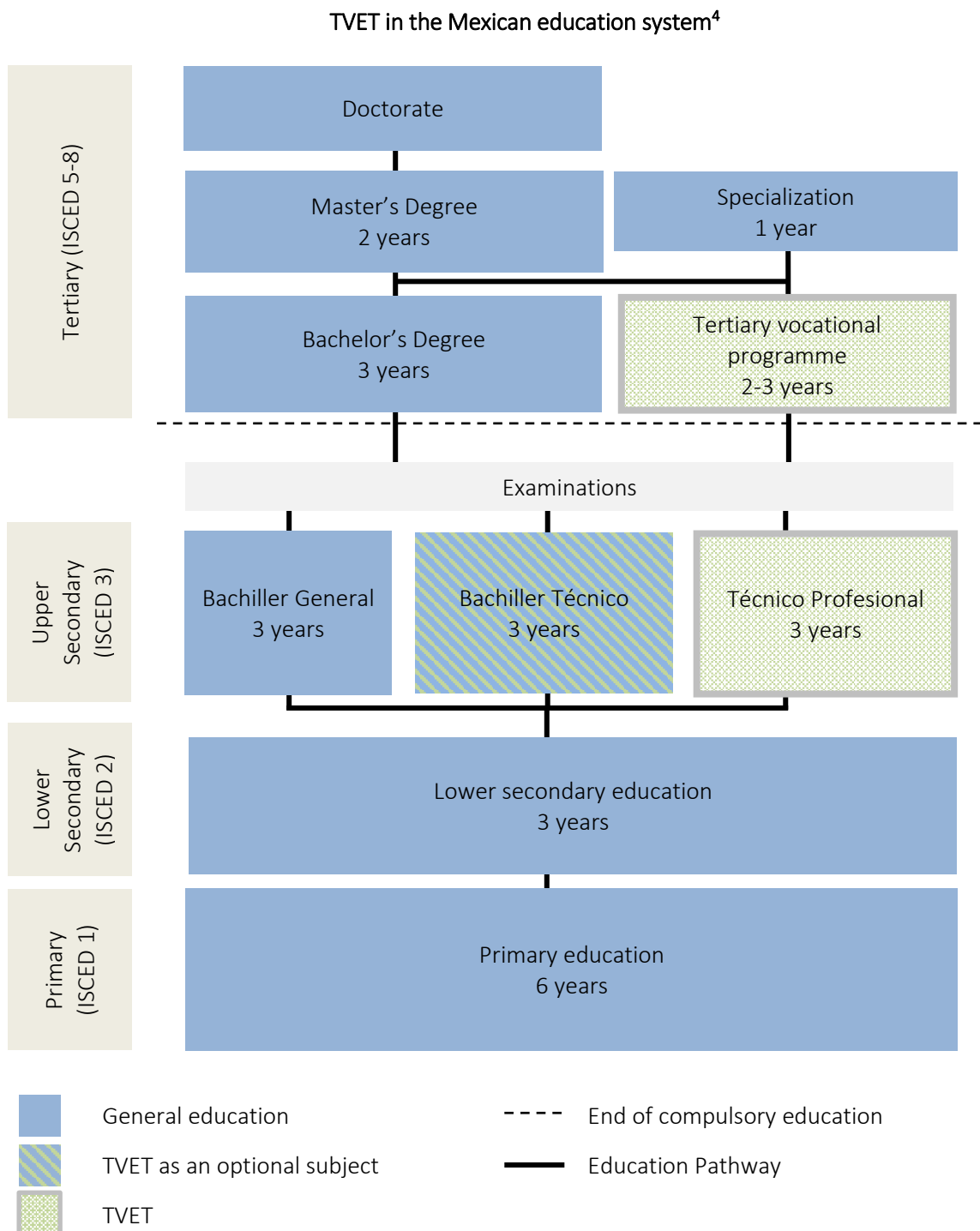
Category	Indicator	Statistics (2014)
Expenditure	Government expenditure on education as % of total government expenditure (%)	19.1%
	Expenditure on secondary and post-secondary non-tertiary vocational education as % of total government expenditure (%)	1.2%

¹ Unless otherwise indicated, all statistics have been gathered from the UNESCO Institute for Statistics (UIS). <http://uis.unesco.org/>

² UN DESA. World Population Prospects. <https://esa.un.org/unpd/wpp/Download/Standard/Population/>

³ International Labour Organization. ILOSTAT - ILO database of labour statistics. www.ilo.org/ilostat

1. TVET systems



⁴ Compiled by UNESCO-UNEVOC International Centre.

Formal TVET system

The formal TVET system in Mexico is structured as follows:

Técnico Profesional (secondary vocational education) is offered at the upper secondary education level (ISCED3).	
Duration:	3 years
Admission requirements:	Lower secondary education
Taught in:	Secondary Polytechnics
<p>The programme aims to train professionals for industrial, trading, service and agricultural activities. Students who complete this pathway receive the vocational upper secondary education certificate (Profesional Técnico - Bachiller). Initially, this pathway was designed to prepare students for a direct entry into the labour market. However, now it enables the students to advance to a Bachelors' equivalent Tertiary Vocational Training Programme, following a competitive examination.</p>	

Bachiller Técnico (General and vocational education) is offered at the upper secondary education level (ISCED3).	
Duration:	3 years
Admission requirements:	Lower secondary education
Taught in:	Secondary Polytechnics
<p>The 'Bachiller Técnico' programme is a combination of general (60 percent) and vocational (40 percent) education. This programme offers a pathway to the graduates to enter tertiary education (Bachelor's programmes) in either vocational or general track, subject to the competitive examination. With this qualification, graduates are also able to gain access to the labour market.</p>	

Técnico Superior (tertiary vocational) is offered at the tertiary education level (ISCED 6).	
Duration:	2-3 years
Admission requirements:	Técnico Profesional or Bachiller Técnico
Taught in:	Higher Polytechnic Institutions
<p>The 'Técnico Superior' programmes are Bachelor degree equivalent vocational training programmes, aimed at training highly trained professionals with strong technical skills – both theoretical and practical. These programmes are structured to place a greater focus on practical training (almost 70 % of the curriculum design) to enable the graduates to be readily absorbed by the labour market. These programmes are taught at centres specializing in different vocational fields, including:</p> <p><i>Centre for Industrial Technological Baccaulaureate and Services (CEBTIS):</i> Associated with the General Directorate of Industrial Technological Education (DGETI / SEP), CEBTIS offers a bivalent baccaulaureate, where in addition to studying a technical specialty,</p>	

the students can take necessary subjects to gain a pathway to higher levels of general education.

Centre for Industrial and Services Technological Studies (CETIS):

Associated with the DGETI / SEP, CETIS expanded their services from previously offering the level of technical professional to also offering the modality of technological baccalaureate. Some specialties are also offered as a technical professional terminal option.

Centre for Scientific and Technological Studies (CECT):

Associated with the National Polytechnic Institute (IPN), this centre specializes in engineering and physical-mathematical sciences, medical-biological sciences, and social and administrative sciences.

Technological Baccalaureate Centre (CBT):

These centres come under the purview of the state educational systems and offer diverse specialties in the priority occupational fields established by each state; e.g. technician in administration, maintenance and general nursing.

Centre for Technological and Agricultural Baccalaureate (CBTA):

Associated with the Directorate General of Agricultural Technological Education of the SEP, the CBTA offers baccalaureates with specializations in branches related to the field. The degree programmes offered by these centres focus on vocational degrees but do not provide options for mobility to higher levels of general education.

Centre for Technological Studies of the Sea (CETMAR):

Associated with the Marine Science and Technology Unit of the SEP, this Centre offers specialties in branches related to fishing, marine transportation, etc.

Non-formal and informal TVET systems

Non-formal programmes tend to consist of courses aimed at training adults in order to improve their performance at work. These courses do not always require an educational background. The programmes are provided by the industrial training institutes, in addition to training programmes offered by regional governments with federal government support (ODE), and technical secondary and agricultural technology education.

The recognition of competences for workforce development and employability is based on the National System of Competency Standards (NSCS) which has been developed by the National Council for Standardization and Certification of Labour Competence (*Consejo Nacional de Normalización y Certificación de Competencias Laborales*, CONOCER, see also Chapter 5). The NSCS is also the framework under which the recognition of non-formal and informal learning is organized, regulated, and implemented in accordance with Agreement 286 of the Ministry of Education (*Acuerdo 286 de la SEP*, issued on 30 October 2000).

A number of government and nongovernmental actors offer non-formal TVET. For example, the National Institute for Adult Education (*Instituto Nacional para la Educación Adulta*, INEA) – under the supervision of the Ministry of Public Education (*Secretaría de Educación Pública*, SEP) – promotes and develops literacy courses as well as primary and secondary education programmes for youth and adults. Moreover, at the lower secondary level, those over 16 years

can choose the vocational track or continue with adult education. Vocational training programmes under the INEA can last from one to four years (depending on occupation) and are implemented by the SEP as well as by public and private institutions. The SEP is continually engaged in identifying targets for recognition of prior learning across different industries and regions. Employers and trade unions play a significant role in this process, both in the design of training programmes and in the evaluation and certification of workers' competences according to the NSCS framework.

The Ministry of Labour and Social Welfare (*Secretaría del Trabajo y Previsión Social, STPS*) also offers non-formal TVET programmes.

2. TVET strategy and key policy documents

Technical and vocational education and training (TVET) in Mexico (*Educación y Formación Técnica Profesional*) aims to provide quality educational services in order to equip individuals with skills that enable them to participate productively in the labour market, and have a high sense of social responsibility and civic values.

The following key documents help guide the development of TVET in Mexico.

Name of document	General Law on Education (<i>Ley General de Educación</i>)
Date entered into force	2006
Website link	http://t1p.de/y28s
Key points and objectives	
<p>The General Law on Education sets out a number of objectives, each accompanied by a set of respective strategies and lines of action:</p> <ul style="list-style-type: none"> • Objective 1: Ensure the quality of learning in basic education and comprehensive training for all groups of the population; • Objective 2: Strengthen the quality and relevance of upper secondary education, higher education and job training, in order to contribute to the development of Mexico; • Objective 3: Ensure greater coverage, inclusion and educational equity among all groups of the population for the construction of a more just society; • Objective 4: Strengthen the practice of physical and sports activities as a component of integral education; • Objective 5: Promote and disseminate art and culture as privileged training resources to promote comprehensive education; • Objective 6: Promote scientific and technological education as an essential element for the transformation of Mexico into a knowledge society. 	

Name of document	Law on Higher Education
Date entered into force	1978
Website link	http://t1p.de/775c
Key points and objectives	
<p>The Law on Higher Education establishes the structure and composition of the tertiary education level in Mexico. It calls on tertiary education institutions to promote, establish and support educational, scientific, technical and artistic services.</p>	

Name of document	Education Sector Programme 2013-2018 (<i>Programa Sectorial de Educación</i>)
Date entered into force	2012
Website link	http://t1p.de/9he2
Key points and objectives	
<p>The Education Sector Programme sets out six education-related objectives, including to:</p> <ul style="list-style-type: none"> • Improve the quality and relevance of higher secondary education and training for the world of work; • Ensure that education and training is inclusive; and to • Encourage science and technology education as it is essential to support Mexico's transition to a knowledge-based economy. <p>Amongst other things, the programme highlights the importance of enabling students to attend upper secondary education to gain the skills necessary to contribute to the social and economic advancement of Mexico. The challenge of mitigating school drop-out rates is also imperative in this regard.</p> <p>To promote inclusive education, the sector programme also stresses the need for more Information and Communications Technology (ICT) in education and training. In addition to improving the quality of secondary and tertiary education and training programmes through teacher training programmes, the sector programme emphasizes the importance of introducing a qualifications framework which will readdress the mismatch between the skills and competencies taught in secondary education and labour market requirements.</p>	

3. Governance and financing

Governance

The **Secretariat of Public Education (*Secretaría de Educación Pública, SEP*)** of the Ministry of Education, specifically, the Sub-Secretary for Higher Education (*Subsecretaría de Educación Media Superior*), is responsible for formal TVET in Mexico on the federal level. The education system in Mexico is decentralized and the SEP shares the responsibility with various national and regional bodies. For example, each state has its own Secretariat of Education in charge of the education system and schools. State governments are responsible for administering State Centres for Scientific and Technological Studies (CECyTE) and Institutes of Training for Work (ICAT). Municipalities also provide education services at all levels.

Other institutions involved in the governance of TVET include:

- The **Directorate General of Higher Technological Education (*Dirección General de Educación Superior Tecnológica*, DGEST)** is responsible for the National System of Technical Institutes (*Sistema Nacional de Institutos Tecnológicos*, SNIT) consisting of 263 institutions: 126 federal technological institutes; 131 decentralized technological institutes, four Regional Centres for Optimization and Development, an Interdisciplinary Centre for Research and Teaching Technical Education, and a National Centre for Research and Technological Development. The SNIT aims to improve TVET services, enhance access to TVET programmes, promote the use of Information and Communications Technology in TVET programmes, and improve school and institutional management structures;
- The **Directorate General of Industrial Technological Education (*Dirección General de Educación Tecnológica Industrial*, DGETI)** aims to train people with technological expertise in the industrial, commercial and service sectors. DGETI has 433 campuses distributed throughout Mexico: 168 Industrial Technology Research Centres and Services and 265 Centres offering Bachiller Técnico and Profesional Técnico – Bachiller.
- The **National College of Technical Professional Education (*Colegio Nacional de Educación Profesional Técnica*, CONALEP)** is one of the leading TVET institutions and provides TVET programmes according to the Mexican dual system. CONALEP's objectives are to:
 - Develop new programmes according to the demands of the labour market;
 - Update the curriculum and teaching equipment;
 - Reduce the school drop-out rate;
 - Implement strategies to develop scholarship programmes for students;
 - Strengthen CONALEP's international cooperation in the field of TVET;
 - Implement strategies to expand the number of opportunities for students to attend schools;
 - Promote links with the industrial sector to reduce the unemployment rate.

Financing

Financing for TVET comes mainly from the federal and state governments, and specifically the SEP, the Ministry of Labour and Social Welfare (*Secretaría del Trabajo y Previsión Social*, STPS), and the Ministry of the Economy (*Secretaría de Economía*) which is responsible for setting the public sector budget. Since 2010, upper secondary education (which includes upper secondary TVET programmes as well) has also been made compulsory and is free of charge in public schools. In addition to the public schools, there are also private TVET institutions which finance themselves through student fees.

In all Mexican states that take part in the dual system, the companies providing training bear the costs for their trainees. These costs include the inter-company training measures, the training staff, the workplace and relevant equipment, books, work clothing, allocated company costs, the IT system, examinations, and the training allowance. In order to acquire more companies for this training model, the government of Estado de México launched a "Scholarship programme for dual vocational education and training" via its funding agency, the "Mexican Council for Science and Technology". The federal state thus assumes some of the

costs and reduces the burden on the companies. However, there are continuing discussions on a regressive structuring of state funding of training remuneration over the course of the training programmes. Under this arrangement, the proportion of training costs subsidized by the government decreases and the contribution by the companies increases in accordance with the training and skill levels of the trainees.

4. TVET teachers and trainers

The Secretariat of Public Education (SEP) is responsible for the quality assurance of TVET teachers and trainers. Specifically, the Interdisciplinary Centre for Research and Teaching Technical Education (*Centro Interdisciplinario de Investigación y Docencia en Educación Técnica*, CIIDET) offers postgraduate specializations in basic education and information technology (IT) for learning. The CIIDET also offers continuing education for TVET teachers and trainers.

To be eligible for teaching at the institutes, potential teachers are required to have an undergraduate degree in teaching from an accredited teacher-training institute (e.g. the *Instituto Superior de Formación Docente*) and relevant work experience.

5. Qualification system and quality assurance

Quality assurance

TVET qualifications are based on the National Competence System (*Sistema Nacional de Competencias*, SNC) which is overseen by CONOCER (see Chapter 1). CONOCER is the only institution in Mexico that grants official certificates of competency. They created the National Competence Standard System (NCSS), a strategic umbrella under which recognition and accreditation practices are organized, regulated and implemented. Employers, workers, teachers and government agree upon the recognition practices within NCSS. The tripartite board of CONOCER, consisting of main line ministries in education, labour and the economy, representatives of three major employers' confederations, and the general secretaries of the three major trade union confederations in the country, assures productive social dialogue in working towards new structures for qualification frameworks in Mexico.

The Mexican model places greater emphasis on standards of competence than on qualifications. Standards are defined according to the needs specified by the productive sectors, thus ensuring that trainees learn relevant skills and facilitating the transfer from training to work.

6. Current reforms and policy discussion

The Education Sector Programme 2013-2018 (Programa Sectorial de Educacion) is the main reform programme in Mexico regarding the education and TVET system.

An important development has been the introduction of the Mexican dual system. In line with the objective of the Education Sector Programme to strengthen the relevance of job training, upper secondary education and tertiary education to the needs of the labour market, the Mexican dual system has a number of characteristics:

- Dual training programmes last at least three years;
- Students must be enrolled in an institution offering the dual system, and must be at least 16 years old;
- The curriculum is consistent with the competency standards listed in the National Competence System (SNC, see above);
- The programme is divided into theoretical knowledge taught by a professor, and practical knowledge taught in the workplace by an supervisor according to an agreed work plan;
- Student evaluation is carried out by the school and the company and is administered through a set of guidelines.

The Mexican dual system is being developed and implemented with the support of the German Federal Institute of Vocational Education and Training (BIBB). Although it shares some common features with the German dual system, the model implemented in Mexico is fully adapted to the local needs and conditions.

Challenges

According to the National College of Technical Professional Education, Mexico is facing the following challenges to the TVET system:

Strengthen equity and educational inclusion	More needs to be done to make TVET programmes accessible in all areas of Mexico, as well as to all groups, including marginalized ones.
Development of teachers	Teacher development needs to be strengthened in order to ensure that teachers are able to convey relevant skills and the high quality of education.
Improve school infrastructure	Schools need to be better equipped to teach the skills that students need for the present and future labour markets. One aspect of this includes more technology in education and training.
Review of curriculum and programmes	The curricula should be reviewed and the necessary changes made to make sure that the lessons and skills taught correspond to the actual needs of the labour market.
Link more effectively with the labour market	More should be done to involve the labour market and private sector actors in the development of the TVET system.

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TVET COUNTRY
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4
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