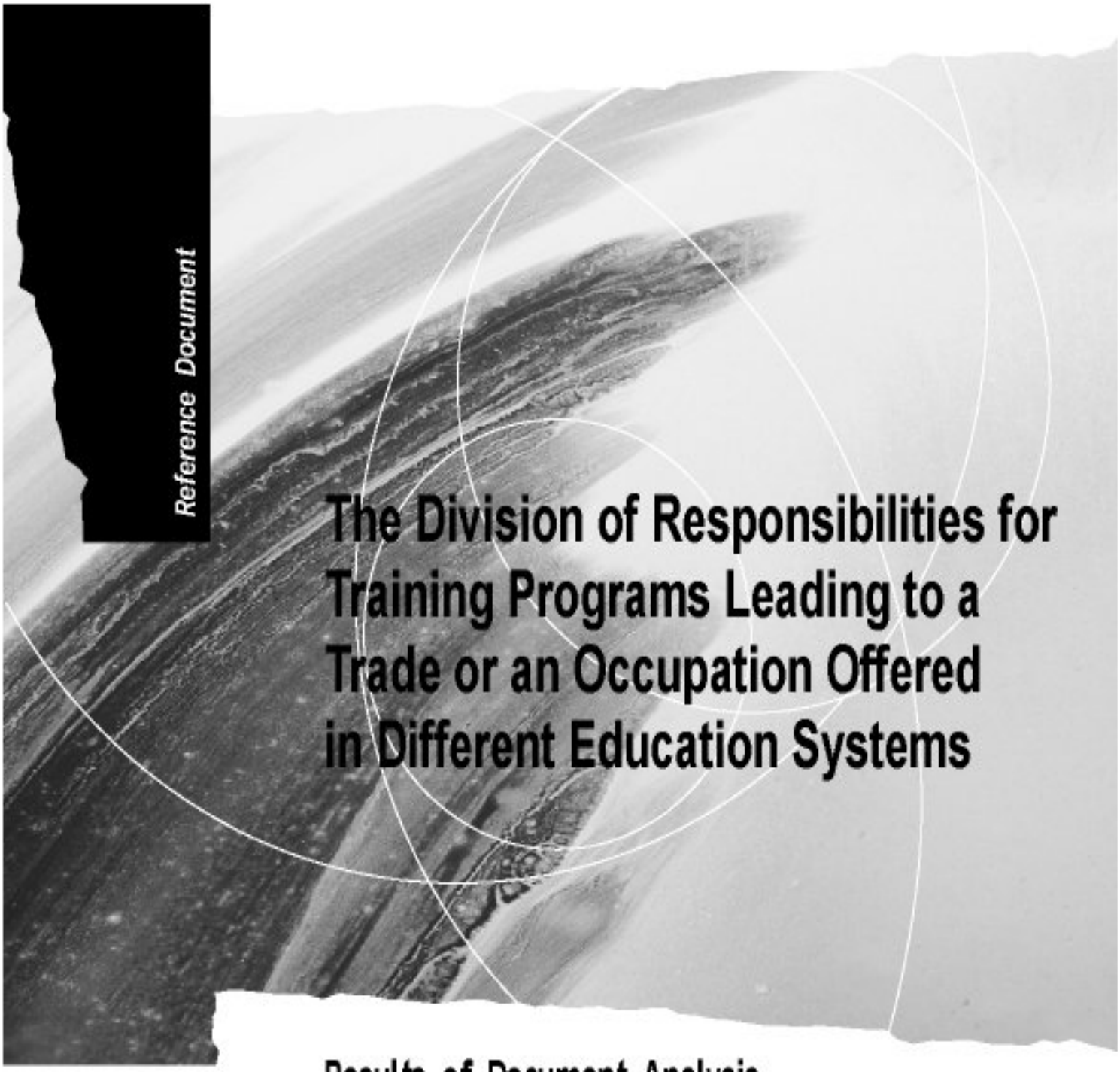
Reference Document

The Division of Responsibilities for Training Programs Leading to a Trade or an Occupation Offered in Different Education Systems

Results of Document Analysis

Québec



Reference Document

The Division of Responsibilities for Training Programs Leading to a Trade or an Occupation Offered in Different Education Systems

Results of Document Analysis

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et formation continue

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SUMMARY

This summary provides an overview of the literature review report concerning the sharing of responsibilities among training program authorities for programs leading to a trade or an occupation offered in different education systems.[1] The goal of this report, begun in the fall of 2004, was to examine sharing of how responsibilities are divided with respect to a) ensuring continuity between training paths, b) program development and c) evaluation of learning among students enrolled in a program of study leading to the practice of a trade or an occupation in Québec, Ontario and Massachusetts, for North America, and in Lithuania, for the European Union. The highlights of the review focus on the following themes:

- the occupational qualifications model in the different education systems examined
- continuity between training paths
- program development
- evaluation of learning

The occupational qualifications model in the different education systems examined

Responsibilities arise from the implementation of conditions designed to foster continuity between training paths, program development and the evaluation of learning. How these responsibilities are shared is closely linked to the occupational qualifications model they fit into. It is thus appropriate to note the following.

- The notion of an occupational qualifications model refers to the set of functional links between labour needs for initial training and for continuing education and training and the means available to meet these needs.

- The three main components of an occupational qualifications model are the occupational activity reference system, the training reference system and the evaluation reference system. The occupational activity reference system constitutes the reference concerning the practise of a trade or a group of related trades. It establishes the set of competencies required to practise a trade along with the criteria associated with carrying out the functions, tasks and activities specific to the trade. In addition, this reference is used to develop training reference systems and evaluation reference systems, both for initial training and continuing education and training, whether offered in the workplace or in the education system.

With regard to the occupational qualifications model in effect in the education systems examined, the literature review brought out the following elements:

- In Québec, Ontario and Massachusetts, the occupational qualifications model involves two components: initial training and continuing education and training, for which there is an

1. It is appropriate to note that expressions such as vocational training, technical training, post-secondary education and college education refer to a specific reality in each of the education systems examined. Further details on each of their characteristics,are provided in Section 1.3, which deals with the conceptual framework of this study.

occupational activity reference system specific to each category. In other words, the occupational qualifications model in North America is characterized by the use of two occupational activity reference systems —one to determine the provision of training within the education system and the other to determine the provision of training in the workplace—and consequently by the use of two training reference systems and two reference systems for evaluation.

- In Lithuania, as in most of the member states of the European Union that have come under the Copenhagen Declaration, the occupational qualifications model is based on the use of a single occupational activity reference system for each trade or group of related trades. This presupposes the use of the same reference to define training options within the education system and in the workplace. Thus, the authorities responsible for providing training in the education system and those responsible for providing it in the workplace use the same occupational activity reference system to develop their own training specifications and then to define common standards for evaluation.

- In all the education systems examined, in terms of the development of reference systems for occupational activities, training specifications and evaluation standards, the sharing of responsibilities is clearly defined between partners in the world of work and those in education. Generally, national authorities play a significant role in defining the related content of these reference systems, which must be universal in scope. The role of local authorities, however, is to express these elements in practical terms, in the provision of programs of study and in the organization of training activities.

Continuity between training paths

Conditions that foster continuity between training paths involve a wide range of measures aimed essentially at providing programs of study that give students access to varied training paths through which they can progress from one level of education to another or from one training path to another and obtain recognition for all or some of the competencies acquired. Measures designed to foster continuity between training paths are linked to the occupational qualifications model they come under. They are grouped into two categories based on distinct approaches.

- The first category of measures under the occupational qualifications model in North America is based on an approach of recognizing credits acquired in courses within a program of study. These measures consist primarily in harmonizing programs of study to create gateways between the various levels of education. Therefore, continuity between training paths is ensured by establishing links between the competencies targeted in secondary, post-secondary and university programs of study within the same or within different training sectors and by negotiating agreements between educational institutions that offer related programs of study. These measures are thus intended to prevent offerings from overlapping training programs, to promote the recognition of credits acquired by students in specific courses and to reduce the duration of training time.

- The second category of measures comes under the occupational qualifications model in Europe and is based on an approach of recognizing competencies acquired in different places and through various means. These measures consist in using a single evaluation

standard to assess and certify the acquisition of the competencies required to practise a trade or a group of related trades, as well as in the grouping of competencies related to the practise of a trade into independent training blocks. In effect, unlike the situation observed in the education systems in North America, training blocks are not made up of parts of programs of study, but rather sets of competencies to be developed in various combinations, depending on the selected training paths. As a result, continuity between training paths is assured through recognition of the learning achieved in the education system and in the workplace.

The development o f training programs leading to a trade or an occupation

The procedures for developing programs leading to a trade or an occupation offered in different education systems differ from one jurisdiction to another. The sharing of responsibilities among the authorities concerned is determined by the characteristics of the occupational qualifications model in use as well as by the structure of the education system in each jurisdiction and the degree of independence of its educational institutions. It is nonetheless possible to provide an overview of the situation observed in the jurisdictions in question.

The process of developing programs leading to a trade or an occupation offered at the secondary and postsecondary levels and, in Québec, at the college-level —in other words, the establishment of training specifications—is a major undertaking involving many steps or activities, which may be carried out in varying sequence, depending on the jurisdiction. These interrelated activities may be described as follows.

- The reaching of a consensus on the skills necessary to practise a given trade or group of related trades, whose competencies are grouped under an occupational activity reference system used to establish training specifications designed to meet the needs of the labour market. Ministries, their related agencies and partners from socioeconomic circles affected by the issue must then determine the competencies to be developed in the programs of study. In Québec, this activity is carried out by the *Ministère de l'Éducation, du Loisir et du Sport*. In Ontario, it is carried out by committees set up by the Ministry of Training, Colleges and Universities for this purpose. In Lithuania, this work is done by the Methodological Centre for Vocational Education and Training, an organization established by the Ministry of Education and Science. In Massachusetts, there is no such process, for identifying the skills necessary to practise a given trade at this level of jurisdiction.

- Analysis of the labour market to determine quantitative and qualitative needs for labour force training for a trade or group of related trades or for a given sector of economic activity. In Ontario and Massachusetts, this analysis is carried out by educational institutions. In Lithuania, this responsibility is held by the Methodological Centre for Vocational Education and Training in collaboration with the Industrial Lead Bodies, which are advisory agencies mandated to ensure that the labour force training offerings correspond to labour market needs. In Québec, this analysis is conducted by the *Ministère de l'Éducation, du Loisir et du Sport*.

- Proposal to develop new programs of study offered at the secondary and postsecondary levels and, in Québec, at the college level, or revision and adaptation of existing programs

of study in light of the results of a labour market analysis. In Ontario, Massachusetts and Lithuania, this is undertaken by the very educational institutions that offer such programs of study, while in Québec, program development is carried out by the *Ministère de l'Éducation, du Loisir et du Sport*.

- Evaluation of the relevance of newly proposed programs of study or those revised and adapted in accordance with ministry guidelines for developing programs leading to a trade or an occupation and, if applicable, approving their development. In Québec, this activity is carried out by the *Ministère de l'Éducation, du Loisir et du Sport*. In Ontario, the Ministry of Training, Colleges and Universities is the responsible authority. In Massachusetts, the Board of Higher Education handles this. In Lithuania, the criteria for assessing new study programs of study is defined by the Ministry of Education and Science. Furthermore, the Methodological Centre for Vocational Education and Training is responsible for evaluating the relevance of secondary-level programs of study while the Centre for Quality Assessment in Higher Education carries out a similar process for programs at the postsecondary level. At the end of these two processes, these two organizations recommend to the Ministry the programs for approval.

- Development of programs of study in accordance with the occupational activity reference system and the requirements established by government ministries, their related agencies and partners. This activity involves, among other things, defining the goals and objectives of the program and the skills to be acquired, a training proposal, specific criteria for assessing the students' mastery of skills, a specific evaluation strategy and the expected minimum performance standard. In Ontario, Massachusetts and Lithuania, this activity is carried out by the educational institutions that offer programs leading to a trade or an occupation. In Québec, at the college level, it is handled jointly by the *Ministère de l'Éducation, du Loisir et du Sport*, which determines the objectives and standards specific to the general training component and the specific training component of technical programs of study, and by the college educational institutions, which define the learning activities leading to the acquisition of the skills covered by these programs. Note that the Ministry may determine part or all of the learning activities required to achieve the objectives and meet the standards related to the common general training component. Furthermore, in Québec, no distinction is made between the occupational activity reference system and the training specifications at the college level. The skills required to practise the related trade or trades are part and parcel of a technical program's standards and objectives . With regard to vocational training at the secondary level, program development, including the definition of learning activities, is under the Ministry's jurisdiction.

- Evaluation and approval of newly developed programs of study according to established requirements or conditions prescribed by law, regulation or the reference frameworks. In Massachusetts and Lithuania, this activity is managed by the ministries, their related agencies or the competent employers' organizations such as Chambers of Commerce. In Ontario, it is carried out by the Credentials Validation Service, an independent organization. In Québec however, such activities do not apply since programs of study are developed by the *Ministère de l'Éducation, du Loisir et du Sport.*

Implementation of programs of study. In Québec, Ontario, Massachusetts and Lithuania, educational institutions are responsible for implementation. More specifically, the teachers who teach the different courses in a given program are also responsible for planning, organizing and implementing the related learning activities.

- Following up and evaluation of the programs leading to a trade or an occupation implemented in the educational institutions. In Québec, for technical programs offered at the college level, these tasks are carried out by the *Commission d'évaluation de l'enseignement collégial*. In Ontario, educational institutions take on this responsibility themselves. In Massachusetts, the Board of Higher Education is the authority responsible. In Lithuania, the Methodological Centre for Vocational Education and Training handles follow-up and evaluation for vocational programs offered in vocational schools, while the Centre for Quality Assessment in Higher Education is similarly responsible for vocational programs of study offered at the college level.

Evaluation of learning

The elements of the process of the evaluation of learning by students enrolled in a program leading to a trade or an occupation vary from one system to another. Therefore, the sharing of responsibilities between the authorities concerned is determined by the characteristics of the occupational qualifications model they come under and the education path in question. A third factor is the stage of the evaluation process involved, i.e. the formulation of general evaluation procedures or the implementation of specific learning evaluation activities.

With regard to the links to be established between the evaluation of learning and the occupational qualifications model, the following should be noted.

- In Québec, Ontario and Massachusetts, the occupational qualifications model is characterized by the use of occupational activity reference systems, training specifications and evaluation standards that differ depending on whether the training is offered within the education system or in the workplace. Conversely, the occupational qualifications model in Lithuania is based on the use of a single occupational activity reference system to define avenues for training in both the education system and the workplace. Similarly, there is a single system of evaluation standards.

As for the links to be established between evaluation of learning and training paths, i.e. secondary-level vocational programs and post-secondary vocational programs in Ontario, Massachusetts and Lithuania—technical programs of study offered at the college level in Québec—, it is worth noting the following.

- In Québec and Massachusetts, evaluation of learning in vocational training at the secondary-level is the responsibility of the education ministries, respectively, the *Ministère de l'Éducation, du Loisir et du Sport* and the Massachusetts Department of Education. In Lithuania, evaluation of learning in vocational training for levels 1 to 4 is handled by the Chambers. Thus, the Chambers select the members of the Qualification Exam Commissions for each vocational school, and these commissions then carry out the evaluation process in accordance with requirements established by the Ministry of

Education and Science. In Ontario, there are no vocational programs offered at the secondary level.

- In Ontario, Massachusetts and Lithuania, educational institutions are responsible for formulating the general procedures for evaluating learning in vocational training at the post-secondary level in accordance with requirements established by government ministries and their related agencies or in accordance with the conditions prescribed by law, regulation or reference frameworks. This means that educational institutions are responsible for specifying the skills targeted by the evaluation and establishing criteria for assessing whether the students have mastered these skills. They are also responsible for proposing an evaluation strategy appropriate for each skill, determining the expected minimum performance standards and defining the grading system and the certification of studies. By contrast, in Québec, the development of general procedures for evaluating learning is the joint responsibility of the *Ministère de l'Éducation, du Loisir et du Sport* and the colleges.

- In Québec, Ontario and Massachusetts, implementation of specific learning evaluation activities is the responsibility of teachers at the educational institutions. Their tasks, then, include planning evaluation activities according to the proposed strategy, producing evaluation instruments and organizing and supervising evaluation activities, whether in-class or in real or simulated work situations. In Lithuania, however, evaluation of learning in vocational training at the post-secondary level is handled by the colleges. In fact, the staff of each college selects the members of the Qualification Exam Commissions which carry out the evaluation process in accordance with requirements established by the Ministry of Education and Science.

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PRESENTATION

This report contains eight chapters and examines the results of a literature review aimed at determining how responsibilities are shared among training program authorities for programs leading to a trade or an occupation offered in different education systems.

The first chapter presents the reference framework of the literature review, i.e. the mandate, the method followed in carrying it out and the conceptual framework that supports the review. The next three chapters, i.e. Chapters 2, 3 and 4, describe the sharing of responsibilities among authorities in various jurisdictions, namely, Lithuania, Massachusetts and Ontario, respectively, with regard to training programs leading to a trade or an occupation offered within the education system. Chapters 5, 6 and 7 successively present a comparison of the strategies implemented by various jurisdictions, including Québec to foster continuity of training paths, develop programs of study and evaluate learning. Finally, Chapter 8 highlights the principal observations drawn from the review.

1 Reference framework of the literature review

The first chapter of this report describes the reference framework of the review, i.e. the mandate, the method used to bring it to fruition and the conceptual framework that supports the review.

1.1 Mandate

The task of literature review under this mandate is an extension of similar work regarding vocational and technical training and occupational qualifications models in Canada, the United States and Europe. In response to new labour needs attributable, among other things, to the shift from a traditional economy to one based on knowledge, skills and technological innovation and in a context of the globalization of markets, the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) has undertaken a reflection on the training systems and qualifications models in use in Québec and elsewhere in the world. This reflection has revealed similarities between the key elements of the systems and models examined and demonstrated that the sharing of responsibilities between the state and the organizations involved in training offerings can vary from one state to another.

Consequently, in the fall of 2004, the Ministry sought to further develop the issue of what characterizes the sharing of responsibilities among training program authorities for programs leading to a trade or an occupation offered in different education systems. Specifically, in the search criteria it prepared concerning this mandate, the Ministry defined its objectives in the following terms:

> Describe the sharing of responsibilities between the government and colleges with regard to the process of developing programs and professional standards and the organization of education in Ontario and a number of North American and European jurisdictions based in particular on the Lithuanian model.
>
> Describe the evaluation reference system in place in various jurisdictions, in particular with regard to the following subjects: verification of compliance with national standards, quality of the training dispensed and contribution of the workplace in the process of evaluating acquired skills.
>
> Describe the conditions surrounding the organization of education that foster greater flexibility and continuity of training.
>
> Describe the conditions that facilitate training paths from one level of education to another.[2]

In short, the mandate consists of bringing to light a set of qualitative data to describe the sharing of responsibilities among authorities for programs leading to a trade or an occupation within the education system in Québec and elsewhere in the world, in particular in relation to the conditions required to ensure continuity of training paths, program of study development and the evaluation of student learning achieved through vocational training.

2. Québec, Ministère de l'Éducation, Direction de la planification et du développement, Secteur de la formation professionnelle et technique, *Devis de recherche* (Québec: Gouvernement du Québec, 2004), p.1-2. (free translation).

The following section reviews the approach taken by the team at Éduconseil inc. in carrying out the literature review project.

1.2 Method

To carry out the literature review, the team at Éduconseil worked closely with project officialsauthorities from the *Ministère de l'Éducation, du Loisir et du Sport*. It also followed a suitable approach based on techniques and methods used in the social sciences and conducted certain document research activities, data processing and data analysis with all the methodological rigour necessary. Finally, in accordance with the mandate, the Éduconseil team performed literature review tasks between October 2004 and December 2005.

The principal activities set in motion to achieve the objectives of the literature review mandate included the following:

- preparing a work session with project authorities from the Ministry and participating in it with a view to discussing the objectives of the project, the work schedule and the reporting plan to present the results of the review
- bringing together the documentation relevant to the project, which involved consulting appropriate Web sites to gather documents potentially valuable for the needs of this project
- examining the collected documents to identify those containing data relevant to the project
- processing the relevant data in accordance with the project objectives of the Ministry to determine the degree of accuracy of the data and assess the appropriate resource people to approach in the organizations in order to access additional data
- establishing the definitive list of jurisdictions selected for the literature review, based on the quality of the data available about them
- designing the framework of data analysis and presentation of the results in relation to the research issues
- analyzing data concerning the sharing of responsibilities among training program authorities for programs leading to a trade or an occupation offered in different education systems, i.e. Ontario and Québec for Canada, Massachusetts for the United States, and Lithuania for Europe, using the analysis framework developed for this purpose;
- producing a synthesis analyzing the data brought to light for each of the research issues
- completing research on how responsibilities are shared among the training program authorities for programs leading to a trade or an occupation offered in different education systems
- conducting a comparative analysis of the situation observed in various jurisdictions with regard to the research issues
- producing a draft version of the literature review report, including a summary of the report, to be submitted to the project authorities from the Ministry in advance of a work session intended to gather their comments on the report
- preparing the work session and participating in it
- analyzing the comments received concerning the draft version and the report summary and preparing the definitive version of the literature review report

1.3 Conceptual framework

To describe the sharing of responsibilities with regard to continuity between training paths, program of study development and evaluation of learning in Québec, Ontario, Massachusetts and Lithuania, the appropriate analytical tools are required. Moreover, comparing the situations observed in the education systems examined necessarily involves defining certain notions to facilitate understanding of the situation in question.

This section constitutes the conceptual framework of the literature review and focuses on five aspects. The first subsection sets out various definitions related to the notion of training. The second considers the notion of level of education. The third and fourth respectively present the principal educational institutions and the various types of programs of study offered in each of the jurisdictions documented in the report. The fifth subsection provides an overview of the education system in each jurisdiction.

1.3.1 The notion of training

The notion of training is at the heart of this literature review. It can be approached from several angles and thus carry various meanings. In its broadest sense, the notion of training refers to a set of "activities, pedagogical situations and didactic means aimed at promoting the acquisition and development of a body of knowledge (practical knowledge, skills, attitudes)."[3] This notion branches out to include initial, continuing, general, vocational and technical training. The definitions presented below illustrate various perspectives for considering the notion of training.

Initial training and continuing training

Initial training consists of a "body of knowledge and set of skills an individual acquires through education preceding his or her entry into an active work life."[4] More specifically, initial training refers to the idea of "vocational or technical training enabling an individual with no previous training or experience in the trade in question, regardless of age, to acquire the skills required to enter the trade or occupation by meeting the minimum requirements of the industry."[5]

On the other hand, the notion of continuing training concerns "activities that enable an individual to develop his or her knowledge and abilities throughout his or her lifetime and to improve his or her condition."[6] From a more restricted point of view, continuing training designates "all types and forms of education or training taken by individuals who have left formal education at some level, performed an occupation or assumed adult responsibilities within a given society."[7]

3. Renald Legendre, *Dictionnaire actuel de l'éducation* (Montréal : Guérin Éditeur Limitée, 1993) p. 622. (free translation).
4. *Ibid*., p. 640. (free translation).
5. Québec, Ministère de l'Éducation du Québec, *La formation professionnelle et technique au Québec. Un système intégrant l'ingénierie de gestion et l'ingénierie de formation*, (Québec: Gouvernement du Québec, 2002), p. 85. (free translation).
6. Renald Legendre, *op.cit*., p. 627. (free translation).
7. *Ibid*. (free translation).

General education, vocational training and technical training

General education relates to activities "intended to develop basic communication and calculation skills and progressively transmit general, literary, mathematical, scientific, historical, civic, technical, social and aesthetic knowledge, among other types."[8] Note that "general education is the opposite of vocational training in that it does not provide for specialization within a given discipline or field of studies aimed at performing occupation-related activities."[9] Indeed, while general education focuses on acquiring basic skills in various fields of knowledge, vocational training instead covers the development of specific skills related to "preparing an individual to perform a trade or occupation."[10] Thus, the notion of vocational training designates not only "(t)raining organized essentially to prepare young people (and adults) to choose a trade or training path by familiarizing them with the materials, tools and work standards appropriate to a range of occupational activities,"[11] but also—and especially—"an initiation to work."[12]

As with vocational training, technical training relates to learning activities designed to foster the acquisition of skills useful for performing a trade or occupation. However, it differs from vocational training by providing preparation for a technical trade rather than a specialized or semi-specialized trade.

To avoid confusing the various meanings of the notion of training, for the purposes of this report, the term *vocational training* will be used to designate preparatory training for a trade or occupation provided through secondary education in Québec and through both secondary and post-secondary education in Ontario, Massachusetts and Lithuania. Accordingly, the term *technical training* will only be used to designate preparatory training for a trade or occupation provided through college education in Québec.

1.3.2 The notion of level of education

The notion of level of education refers to "each of the major educational divisions"[13] and, in association with the idea of a cycle, encompasses the phases of the course of study that involves "a number of years of study within a coherent and homogenous whole."[14] Accordingly, the various education systems examined generally involve four major levels of education, i.e. elementary education, secondary education, post-secondary education and university education. Note that Québec has the unique characteristic of having the notion of college education cover what is included under the notion of post-secondary education in the other jurisdictions. This aspect of Québec's education system is discussed in greater detail below.

8. *Ibid*., p. 638. (free translation).
9. *Ibid*. (free translation).
10. Office québécois de la langue française, *Grand dictionnaire terminologique* <www.oqlf.gouv.qc.ca>.
11. Ministère de l'Éducation du Québec, *La formation professionnelle et technique au Québec*, *op. cit*., p. 85. (free translation).
12. *Ibid*. (free translation).
13. Office québécois de la langue française *Grand dictionnaire terminologique* <www.oqlf.gouv.qc.ca>.
14. Renald Legendre, *op. cit*., p. 293. (free translation).

Elementary education

Elementary education is the first phase of the course of study, namely, the "first level of instruction of children."[15] This level of education involves a variable number of years of study depending on the education system in each state. Elementary education takes six years in Québec, eight in Ontario, five in Massachusetts and four in Lithuania.

Secondary education

As the second phase of the course of study, secondary education consists of a "period of formal post-elementary education lasting from five to eight years depending on the length of the elementary education."[16] Thus, secondary education takes five years in Québec, i.e. two years for the first cycle and three years for the second cycle; four years in Ontario; seven years in Massachusetts, i.e. three for the first cycle and four for the second cycle; and eight years in Lithuania, i.e. six years for the lower secondary level and two years for the higher secondary level.

Post-secondary education and college education

Post-secondary education designates "any learning activity undertaken after completion of secondary studies."[17] In Ontario, Massachusetts and Lithuania, the first year of post-secondary education corresponds to the thirteenth year of schooling. In Québec, it corresponds to the twelfth year of schooling. In addition, Québec's post-secondary education includes "what comes under either college education or university education."[18] To this end, for the purposes of this report, the term *college education* refers to "education provided through colleges of general and vocational education (*CEGEPs*) and similar institutions,"[19] a reality specific to Québec. Discussion of the results of literature review results will therefore use the notion of *post-secondary education* to describe the situations observed in Ontario, Massachusetts and Lithuania, and the notion of *college education* with reference to the situation in Québec.

University education

Finally, university education is the last phase of the course of study. It generally covers university studies at the undergraduate, master's and doctoral levels.. University education is also designated by the term "higher education."

1.3.3 Main types of educational institutions in the jurisdictions examined

The characteristics of educational institutions vary from state to state and depend on the structure of the education system and the type of training offered (initial, continuing, general, vocational or technical). To facilitate understanding of what is encompassed in each of the jurisdictions examined, it is appropriate to provide an overview of the principal types of educational institutions that exist.

15. *Ibid*., p. 1014. (free translation).
16. *Ibid*., p. 531. (free translation).
17. *Ibid*., p. 527. (free translation).
18. Office québécois de la langue française, *Grand dictionnaire terminologique* <www.oqlf.gouv.qc.ca>.
19. Renald Legendre, *op. cit*., p. 212 (free translation).

Educational institutions in Québec

In Québec, secondary-level educational institutions comprise secondary schools and vocational training centres, while college educational institutions essentially mean *CEGEPs*. Table 1.1 provides the principal characteristics of Québec's secondary and college educational institutions.

Table 1.1 Principal characteristics of secondary and college educational institutions in Québec

Principal characteristics of educational institutions

Secondary-level educational institutions

Secondary schools

- Secondary schools are educational institutions that come under school boards and offer basic general education.
- Students begin secondary studies after completing elementary studies, at about age 12 and after completing 6 years of schooling.
- At the end of their secondary studies, students who have earned a Secondary Studies Diploma (SSD) can enter vocational training programs offered by vocational training centres and pre-university or technical training programs offered by *CEGEPs*.

Vocational training centres

- Vocational training centres are educational institutions that come under school boards and offer vocational training focusing on a specialized or semi-specialized trade.
- Vocational training centres offer programs leading to an Attestation of Vocational Education (AVE), a Diploma of Vocational Studies (DVS) or an Attestation of Vocational Specialization (AVS).
- Students can enter programs leading to an AVE after completing their second year of secondary studies, i.e. about age 15 and after accumulating about 8 years of schooling.
- Students can enter programs leading to a DVS after completing their third or fourth year of secondary studies, i.e. about age 15 or 16 and after accumulating about 9 or 10 years of schooling. Note however that students who register for these programs are often adults.
- Students who hold a DVS or have equivalent experience can enter programs leading to an AVS, i.e. from age 16 and after accumulating about 10 years of schooling. However, students who register for these programs are often adults.
- At the end of their vocational studies, students who have earned an AVE are ready to enter the labour market while students with a DVS or AVS can enter the labour market or, in certain cases, pre-university or technical training offered by *CEGEPs*.

College educational institutions

CEGEPs

- *CEGEPs* are college educational institutions that are unique to Québec's education system. They are independent entities.
- Students enter programs of study offered by *CEGEPs* after completing their secondary studies, i.e. about age 17 and after accumulating 11 years of schooling.
- *CEGEPs* offer two training paths that lead to a Diploma of College Studies (DCS): pre-university training and technical training.
- Pre-university programs of study take 2 years and provide access to undergraduate studies while technical programs of study take 3 years and prepare students to perform a technical trade, enter the labour market or, in certain cases, continue with university studies.
- There are 48 *CEGEPs* in Québec and about ten grant-aided private colleges.

Educational institutions in Ontario

In Ontario, secondary and post-secondary educational institutions primarily comprise secondary schools for the former and colleges of applied arts and technology for the latter. Table 1.2 provides the principal characteristics of these educational institutions.

Table 1.2 Principal characteristics of secondary and post-secondary educational institutions in Ontario

Principal characteristics of educational institutions
Secondary-level educational institutions
Secondary schools • Secondary schools are educational institutions that offer a basic general education. • Students begin secondary studies after completing their elementary studies, i.e. about age 14 and after accumulating 8 years of schooling. • At the end of their secondary studies, students who have earned an Ontario Secondary School Diploma (OSSD) can enter post-secondary vocational training or undergraduate studies.
Post-secondary educational institutions
Colleges of applied arts and technology (CAAT) • The CAATs are post-secondary educational institutions with a mission to offer complete education and training programs focusing on preparation for a trade. • The CAATs offer vocational programs of study lasting 1, 2 or 3 years. • Students enter the programs of study offered by CAATs after completing their secondary studies, i.e. about age 18 and after accumulating 12 years of schooling. • One-year vocational programs of study lead to a certificate and offer preparation for a semi-specialized trade. Two-year programs lead to a diploma and prepare the student for a specialized trade. Three-year programs lead to a diploma and offer preparation for a technical trade. • There are 25 CAATs in Ontario.

Educational institutions in Massachusetts

Massachusetts' secondary-level educational institutions comprise middle or junior high schools, which offer the first cycle of secondary studies, high schools, which offer the second cycle of secondary studies, and vocational technical schools. The state's post-secondary educational institutions include community colleges and state colleges. The principal characteristics of these educational institutions are outlined in Table 1.3.

Table 1.3 Principal characteristics of secondary and post-secondary educational institutions in Massachusetts

Principal characteristics of educational institutions
Secondary-level educational institutions
Middle or junior high schools • Middle or junior high schools are educational institutions that come under school districts and offer a basic general education which constitutes the first cycle of secondary studies.

Principal characteristics of educational institutions

- Students enter middle or junior high schools after completing their elementary studies, i.e. about age 11 and after accumulating 5 years of schooling.
- At the end of the first cycle of secondary studies, students enter the second cycle of secondary studies, which is offered in high schools.

High schools

- High schools are educational institutions that come under school districts and offer a basic general education which constitutes the second cycle of secondary studies, as well as *Tech Prep* and pre-apprenticeship programs.
- Students enter high schools after completing the first cycle of secondary studies, i.e. about age 14 and after accumulating 8 years of schooling.
- At the end of the second cycle of secondary studies, students who have earned a Secondary Studies Diploma can enter vocational training offered through vocational technical schools, pre-university training or vocational training provided through post-secondary education or undergraduate studies.

Vocational technical schools

- Vocational technical schools are educational institutions that come under school districts and offer vocational training focusing on a specialized or semi-specialized trade.
- Vocational technical schools offer programs that take 4 years and lead to a Certificate of Occupational Proficiency.
- Students enter the vocational programs of study offered by vocational technical schools after completing their first cycle of secondary studies, i.e. about age 14 and after accumulating 8 years of schooling.
- At the end of their vocational studies, students who have earned a Certificate of Occupational Proficiency mainly have access to the labour market.

Post-secondary educational institutions

Community colleges

- Community colleges are post-secondary educational institutions that offer both vocational programs and pre-university programs of study.
- Students enter the programs of study offered by community colleges after completing their second cycle of secondary studies, i.e. about age 18 and after accumulating 12 years of schooling.
- One-year vocational programs of study lead to a certificate and prepare the student for a specialized or semi-specialized trade, while two-year vocational programs of study lead to an associate degree and provide preparation for a technical trade.
- Two-year pre-university programs of study constitute the first part of undergraduate studies since the credits earned through these programs can be transferred to a programs of study leading to a bachelor's degree.
- There are 15 community colleges in Massachusetts.

State colleges

- State colleges are post-secondary educational institutions that offer vocational programs of study although their primary mission consists of offering programs of study leading to a bachelor's degree or a master's degree.
- Students enter the programs of study offered by state colleges after completing their second cycle of secondary studies, i.e. about age 18 and after accumulating 12 years of schooling.
- One-year vocational programs of study offered by state colleges lead to a certificate and prepare the student for a specialized or semi-specialized trade.
- There are 9 state colleges in Massachusetts.

Educational institutions in Lithuania

In Lithuania, secondary-level educational institutions comprise basic schools, which offer the lower secondary education, secondary schools and *gymnasiums*, which offer the higher secondary education, and vocational schools. Post-secondary educational institutions essentially involve colleges. Table 1.4 presents the principal characteristics of these educational institutions.

Table 1.4 Principal characteristics of secondary and post-secondary educational institutions in Lithuania

Principal characteristics of educational institutions

Secondary-level educational institutions

Basic schools

- Basic schools are educational institutions that offer a basic general education which constitutes the first level of secondary studies, i.e. lower secondary education lasting 6 years.
- Students enter basic schools after completing their elementary studies, i.e. about age 10 and after accumulating 4 years of schooling.
- At the end of the lower secondary education, students who have earned a Basic-School-Leaving Certificate can pursue general education through higher secondary education and level 2 and 3 vocational training offered by vocational schools.

Secondary schools

- Secondary schools are educational institutions that offer an advanced general education, which constitutes higher secondary education.
- Students enter higher secondary studies after completing their lower secondary education and earning the Basic-School-Leaving Certificate, i.e. about age 16 and after accumulating 10 years of schooling.
- At the end of the higher secondary education, students who have earned a Maturity Certificate can pursue level 4 vocational training offered by vocational schools, vocational training offered by colleges or undergraduate studies.

Gymnasiums

- *Gymnasiums* are educational institutions that offer a more advanced general education than secondary schools, which constitutes the higher secondary education. Some of them can also offer specific general education programs (arts, for example).
- Students enter *gymnasiums* after completing their lower secondary education and earning the Basic-School-Leaving Certificate, i.e. about age 16 and after accumulating 10 years of schooling. Students can also enter certain *gymnasiums* during their lower secondary education, i.e. about age 14 and after accumulating 8 years of schooling.
- At the end of their studies in *gymnasiums*, students who have earned a Maturity Certificate can pursue level 4 vocational training offered by vocational schools, vocational training offered by colleges or undergraduate studies.

Vocational schools

- Vocational schools are educational institutions that offer levels 1 to 4 vocational training programs focusing on a specialized or semi-specialized trade.
- Level 1 programs, lasting 2 or 3 years, are accessible after the first 2 years of the lower secondary education. The two-year programs lead to the Qualification Certificate and prepare the student for a semi-specialized trade. The three-year programs lead to both the Basic-School-Leaving Certificate and the Qualification Certificate and also prepare the student for a semi-specialized trade.
- Level 2 programs, lasting 2 years, are accessible after the lower secondary education. They lead to a Qualified Worker's Diploma and prepare the student for a specialized trade.
- Level 3 programs, lasting 3 years, are accessible after the lower secondary education. They lead to a Maturity Certificate and a Qualified Worker's Diploma and prepare the student for a specialized trade.
- Level 4 programs, lasting 1 year, 1 and a half years or 2 years, are accessible after the higher secondary education. They lead to a Qualified Worker's Diploma and prepare the student for a specialized trade.

Post-secondary educational institutions

Colleges

- Colleges are post-secondary educational institutions that offer vocational programs of study focusing on practical training. Their mission consists primarily of meeting the needs of the labour market and supporting the economic and social development of the communities they serve.
- Students enter college programs after earning the Maturity Certificate, i.e. about age 18 and after accumulating 12 years of schooling.

Principal characteristics of educational institutions
• Vocational programs, lasting 3 or 4 years, lead to a Post-secondary Studies Diploma (Higher Education Diploma) and a Specific Qualification and prepare the student for a technical trade. • There are about 25 colleges in Lithuania, nearly half of which are private institutions.

1.3.4 Various programs of study offered in the jurisdictions examined

As with the principal educational institutions, the various programs of study offered through secondary and post-secondary education are described to provide an overview of the characteristics of the situations in the jurisdictions examined. For each of the education systems in question, the following aspects are considered: the objectives and duration of the programs, the age of the registered students, general admission requirements, the educational institution that offer them, the diplomas and further opportunities they lead to.

Programs offered through Québec's secondary and college education

The programs of study offered through Québec's secondary education relate to general education and vocational training, i.e. programs leading to an Attestation of Vocational Education, a Diploma of Vocational Studies or an Attestation of Vocational Specialization. The principal characteristics of these programs of study are presented in Table 1.5. Programs offered through college education, as shown in Table 1.6, relate to pre-university training and technical training.

Table 1.5 Principal characteristics of programs of study offered through secondary education in Québec

Principal characteristics of programs of study offered through secondary education	
General education	
Objective	• Enable the student to acquire basic general knowledge
Duration	• 5 years (from 7th to 11th grade)
Student age range	• From age 12 to 17
General admission requirements	• Completion of elementary studies
Dispensing educational institutions	• Secondary schools, under school boards
Diploma	• Secondary Studies Diploma (SSD)
Opportunities upon completion	• Access to secondary-level vocational training and college-level pre-university training and technical training
Vocational training	
Programs leading to an Attestation of Vocational Education	
Objective	• Enable the student to acquire skills useful for a semi-specialized trade (the training must meet a need for employment locally)
Duration	• Variable depending on the trade
Student age range	• Age 15 or up
General admission requirements	• Completion of at least the second year of secondary education
Dispensing educational institutions	• Vocational training centres, under school boards, and businesses
Diploma	• Attestation of Vocational Education (AVE)
Opportunities upon completion	• Access to the labour market
Programs leading to a Diploma of Vocational Studies	
Objective	• Enable the student to acquire skills useful to a specialized or semi-specialized trade

Principal characteristics of programs of study offered through secondary education	
Duration	• 1 or 2 years
Student age range	• Age 15 or up
General admission requirements	• Completion of the third or fourth year of secondary education
Dispensing educational institutions	• Vocational training centres, under school boards
Diploma	• Diploma of Vocational Studies (DVS)
Opportunities upon completion	• Access to the labour market, programs leading to an Attestation of Vocational Specialization and, in certain cases, technical training offered at the college level
Programs leading to an Attestation of Vocational Specialization	
Objective	• Enable the student to upgrade in a specific trade
Duration	• From 6 months to 2 years
Student age range	• Age 16 or up
General admission requirements	• Hold a DVS or have equivalent experience
Dispensing educational institutions	• Vocational training centres, under school boards
Diploma	• Attestation of Vocational Specialization (AVS)
Opportunities upon completion	• Access to the labour market and, in certain cases, technical training offered at the college level

Table 1.6 Principal characteristics of programs of study offered through college education in Québec

Principal characteristics of programs of study offered through college education	
Pre-university programs of study	
Objective	• Enable the student to acquire general knowledge useful for continuing university studies
Duration	• 2 years
Student age range	• Age 17 to 19
General admission requirements	• Hold an SSD
Dispensing educational institutions	• *CEGEPs* and similar institutions
Diploma	• Diploma of College Studies (DCS)
Opportunities upon completion	• Access to undergraduate studies
Technical programs of study	
Objective	• Enable the student to acquire skills useful for a technical trade
Duration	• 3 years
Student age range	• Age 17 to 20
General admission requirements	• Hold an SSD or, in certain cases, a DVS
Dispensing educational institutions	• *CEGEPs* and similar institutions
Diploma	• DCS
Opportunities upon completion	• Access to the labour market or undergraduate studies

Programs of study offered through secondary and post-secondary education in Ontario

In Ontario, secondary-level programs of study include both general education and pre-apprenticeship programs. Post-secondary programs of study include vocational training offered by colleges of applied arts and technology (CAAT), apprenticeship programs and programs leading to a certificate, a diploma or a *post diploma*. The university-level programs offered by CAATs lead to an applied degree. The principal characteristics of programs of study offered through secondary and post-secondary education in Ontario are provided in Tables 1.7 and 1.8.

Table 1.7 Principal characteristics of secondary-level programs of study in Ontario

Principal characteristics of secondary-level programs of study	
General education	
Objective	• Enable the student to acquire basic general knowledge
Duration	• 4 years (from the 9th to the 12th grade)
Student age range	• Age 14 to 18
General admission requirements	• Completion of elementary studies
Dispensing educational institutions	• Secondary schools
Diploma	• Ontario Secondary School Diploma (OSSD)
Opportunities upon completion	• Access to post-secondary vocational training or undergraduate studies
Pre-apprenticeship programs	
Cooperative education	
Objective	• Enable the student to acquire basic general knowledge and gain familiarity with certain trades
Duration	• Variable depending on the trade
Student age range	• Age 14 or up
General admission requirements	• Completion of elementary studies
Dispensing educational institutions	• Secondary schools
Diploma	• OSSD
Opportunities upon completion	• Access to post-secondary vocational training or undergraduate studies
Ontario Youth Apprenticeship Program (OYAP)	
Objective	• Enable the student to begin apprenticing in a trade during the final years of the secondary education while continuing with the general education component
Duration	• 1 and a half or 2 years
Student age range	• Age 16 to 18
General admission requirements	• Completion of the first two years of secondary studies
Dispensing educational institutions	• Secondary schools
Diploma	• OSSD
Opportunities upon completion	• Access to the labour market, post-secondary vocational training and apprenticeship programs (the credits accumulated within the pre-apprenticeship program are recognized for students who register for an apprenticeship program)

Table 1.8 Principal characteristics of post-secondary programs of study in Ontario

Principal characteristics of post-secondary programs of study	
Vocational training offered by CAATs	
Apprenticeship programs	
Objective	• Enable the student to acquire skills useful for a specialized or semi-specialized trade, mainly in real working situations
Duration	• 2 to 6 years
Student age range	• Age 18 to 24
General admission requirements	• Hold an OSSD
Dispensing educational institutions	• CAATs and businesses
Diploma	• Apprenticeship Certificate
Opportunities upon completion	• Access to the labour market

Principal characteristics of post-secondary programs of study	
Programs leading to a certificate	
Objective	• Enable the student to acquire skills useful for a semi-specialized trade
Duration	• 1 year or less
Student age range	• Age 18 to 19
General admission requirements	• Hold an OSSD
Dispensing educational institutions	• CAATs
Diploma	• Certificate
Opportunities upon completion	• Access to the labour market, other post-secondary vocational programs of study or undergraduate studies
Programs leading to a diploma	
Objective	• Enable the student to acquire skills useful for a specialized trade
Duration	• 2 to 3 years
Student age range	• Age 18 to 21
General admission requirements	• Hold an OSSD or a certificate
Dispensing educational institutions	• CAATs
Diploma	• Diploma
Opportunities upon completion	• Access to the labour market, other post-secondary vocational programs of study or undergraduate studies
Programs leading to a *post diploma*	
Objective	• Enable the student to deepen and refine acquired skills within a given trade
Duration	• 1 year
Student age range	• Age 19 or up
General admission requirements	• Hold a certificate, a diploma or an applied degree
Dispensing educational institutions	• CAATs
Diploma	• *Post diploma*
Opportunities upon completion	• Access to the labour market
University training offered by CAATs	
Programs leading to an applied degree	
Objective	• Enable the student to acquire knowledge specific to a field of study useful for a technical trade
Duration	• 4 years
Student age range	• Age 18 or up
General admission requirements	• Hold an OSSD, a certificate or a diploma
Dispensing educational institutions	• Certain CAATs
Diploma	• Applied degree
Opportunities upon completion	• Access to the labour market or programs leading to a *post diploma*

Secondary and post-secondary programs of studyoffered in Massachusetts

In Massachusetts, at the secondary level, the principal programs of study relate to general education and various vocational training programs, i.e. those offered by vocational technical schools, *Tech Prep* programs and pre-apprenticeship programs (refer to Table 1.9). At the post-secondary level, vocational training offered by community and state colleges include apprenticeship programs and programs leading to a certificate or an associate degree while university training offered by community colleges (refer to Table 1.10) involves programs leading to an Associate in Arts in General Studies Degree or an Associate in Arts Degree.

Table 1.9 Principal characteristics of secondary-level programs of study offered in Massachusetts

Principal characteristics of secondary-level programs of study	
General education	
Objective	• Enable the student to acquire basic general knowledge
Duration	• 4 years (from the 9th to the 12th grade)
Student age range	• Age 14 to 18
General admission requirements	• Completion of the first cycle of secondary studies, i.e. 8th grade
Dispensing educational institutions	• High schools
Diploma	• Secondary Studies Diploma
Opportunities upon completion	• Access to secondary-level vocational training, pre-university training and post-secondary vocational training or undergraduate studies
Vocational training	
Programs offered by vocational technical schools	
Objective	• Enable the student to acquire skills useful for a specialized or semi-specialized trade
Duration	• 4 years (from the 9th to the 12th grade)
Student age range	• Age 14 to 18
General admission requirements	• Completion of the first cycle of secondary studies, i.e. 8th grade
Dispensing educational institutions	• Vocational technical schools
Diploma	• Secondary Studies Diploma and Certificate of Occupational Proficiency
Opportunities upon completion	• Access to the labour market
***Tech Prep* programs**	
Objective	• Enable the student to gain familiarity with a specific technical sector while continuing with the secondary-level general education
Duration	• 2 years (11th and 12th grade)
Student age range	• Age 16 to 18
General admission requirements	• Completion of the first two years of upper secondary studies (9th and 10th grade)
Dispensing educational institutions	• High schools
Diploma	• Secondary Studies Diploma
Opportunities upon completion	• Access to pre-university training and vocational training at the post-secondary level (certain credits accumulated through the *Tech Prep* program are recognized for students who enter a post-secondary vocational training program) or undergraduate studies
Pre-apprenticeship programs	
Objective	• Enable the student to begin apprenticing in a trade during the last two years of the secondary education while continuing their general education
Duration	• 2 years (11th and 12th grade)
Student age range	• Age 16 to 18
General admission requirements	• Completion of the first two years of upper secondary studies (9th and 10th grade)
Dispensing educational institutions	• High schools and businesses
Diploma	• Secondary Studies Diploma and Certificate of Completion of Pre-Apprenticeship
Opportunities upon completion	• Access to pre-university training, post-secondary vocational training and apprenticeship programs (credits accumulated through the pre-apprenticeship program are recognized for students who register in an apprenticeship program)

Table 1.10 Principal characteristics of post-secondary programs of study offered in Massachusetts

Principal characteristics of post-secondary programs of study	
Vocational training offered by community colleges and state colleges	
Apprenticeship programs (Registered Apprenticeship Program)	
Objective	• Enable the student to acquire skills useful for a specialized trade, mainly in real working situations
Duration	• 1 to 6 years
Student age range	• Age 18 or up
General admission requirements	• Hold a Secondary Studies Diploma and be hired by a business as an apprentice
Dispensing educational institutions	• Community colleges or vocational technical schools and businesses
Diploma	• Certificate of Completion of Apprenticeship
Opportunities upon completion	• Access to the labour market
Programs leading to a certificate	
Objective	• Enable the student to acquire skills useful for a specialized or semi-specialized trade
Duration	• 1 year or less
Student age range	• Age 18 to 19
General admission requirements	• Hold a Secondary Studies Diploma
Dispensing educational institutions	• Community colleges and state colleges
Diploma	• Certificate
Opportunities upon completion	• Access to the labour market or undergraduate studies
Programs leading to an associate degree	
Objective	• Enable the student to acquire skills useful for a technical trade
Duration	• 2 years
Student age range	• Age 18 to 20
General admission requirements	• Hold a Secondary Studies Diploma
Dispensing educational institutions	• Community colleges
Diploma	• Associate degree
Opportunities upon completion	• Access to the labour market or undergraduate studies
University training offered by Community Colleges	
Programs leading to an Associate in Arts in General Studies Degree or an Associate in Arts Degree	
Objective	• Enable the student to acquire general knowledge useful for continuing university studies (these programs constitute the first part of undergraduate studies)
Duration	• 2 years
Student age range	• Age 18 to 20
General admission requirements	• Hold a Secondary Studies Diploma
Dispensing educational institutions	• Community Colleges
Diploma	• Associate in Arts in General Studies Degree or Associate in Arts Degree
Opportunities upon completion	• Access to undergraduate studies (most credits accumulated through these programs can be transferred to a program of study leading to a bachelor's degree)

Secondary and post-secondary programs of study offered in Lithuania

In Lithuania, secondary-level programs of study relate to general education, i.e. lower secondary education and higher secondary education, and vocational training, i.e. levels 1, 2 and 3 vocational programs of study. Post-secondary programs of study relate to level 4 vocational programs of study and those offered by colleges. Tables 1.11 and 1.12 provide the principal characteristics of these programs of study.

Table 1.11 Principal characteristics of secondary-level programs of study in Lithuania

Principal characteristics of secondary-level programs of study	
General education	
Lower secondary education	
Objective	• Enable the student to acquire basic general knowledge
Duration	• 6 years (from 5th to 10th grade)
Student age range	• Age 10 to 16
General admission requirements	• Completion of elementary studies
Dispensing educational institutions	• Basic schools
Diploma	• Basic-School-Leaving Certificate
Opportunities upon completion	• Access to general education at the higher secondary level and levels 2 and 3 vocational training provided through secondary education
Higher secondary education	
Objective	• Enable the student to acquire an advanced general education
Duration	• 2 years (11th and 12th grade)
Student age range	• Age 16 to 18
General admission requirements	• Hold a Basic-School-Leaving Certificate
Dispensing educational institutions	• Secondary schools and *gymnasiums*
Diploma	• Maturity Certificate
Opportunities upon completion	• Access to level 4 vocational training through post-secondary education, vocational training offered by colleges and undergraduate studies
Vocational training	
Level 1 vocational programs of study	
Objective	• Enable the student to acquire skills useful for a semi-specialized trade while completing the lower secondary education
Duration	• 2 or 3 years
Student age range	• Age 14 or up
General admission requirements	• Completion of the first two years of the lower secondary education
Dispensing educational institutions	• Vocational schools
Diploma	• Basic-School-Leaving Certificate and Qualification Certificate for three-year programs and only the Qualification Certificate for two-year programs
Opportunities upon completion	• Access to the labour market and, for students who have obtained the Basic-School-Leaving Certificate, access to general education at the higher secondary level and levels 2 and 3 vocational training provided through secondary education
Level 2 vocational programs of study	
Objective	• Enable the student to acquire skills useful for a specialized trade
Duration	• 2 years
Student age range	• Age 16 to 18

Principal characteristics of secondary-level programs of study	
General admission requirements	• Hold a Basic-School-Leaving Certificate
Dispensing educational institutions	• Vocational schools
Diploma	• Qualified Worker's Diploma
Opportunities upon completion	• Access to the labour market
Level 3 vocational programs of study	
Objective	• Enable the student to acquire skills useful for a specialized trade while completing the higher secondary education
Duration	• 3 years
Student age range	• Age 16 to 19
General admission requirements	• Hold a Basic-School-Leaving Certificate
Dispensing educational institutions	• Vocational schools
Diploma	• Maturity Certificate and Qualified Worker's Diploma
Opportunities upon completion	• Access to the labour market, vocational training offered by colleges and undergraduate studies

Table 1.12 Principal characteristics of post-secondary programs of study in Lithuania

Principal characteristics of post-secondary programs of study	
Level 4 vocational programs of study	
Objective	• Enable the student to acquire general knowledge useful to a specialized trade
Duration	• 1 year, 1 and a half years or 2 years
Student age range	• Age 18 to 20
General admission requirements	• Hold a Maturity Certificate
Dispensing educational institutions	• Vocational schools
Diploma	• Qualified Worker's Diploma
Opportunities upon completion	• Access to the labour market
Vocational programs of study offered by colleges	
Objective	• Enable the student to acquire skills useful to a technical trade
Duration	• 3 or 4 years
Student age range	• Age 18 to 21
General admission requirements	• Hold a Maturity Certificate
Dispensing educational institutions	• Colleges
Diploma	• Higher Education Diploma and Specific Qualification
Opportunities upon completion	• Access to the labour market and undergraduate studies

1.3.5 Overview of the education system in the jurisdictions examined

This last point of the conceptual framework provides an overview of the education system in each of the jurisdictions considered by the literature review. Thus, as shown in Table 1.13, this overview focuses on three levels of education, i.e. elementary education, secondary education and post-secondary education—college education in Québec—and on the principal vocational—or technical—training programs offered by the various educational institutions in each state. It also illustrates the number of years associated with the various levels of education within the education system of each of the jurisdictions in question.

Table 1.13 Overview of the education systems in the jurisdictions examined

Jurisdiction	Years of schooling															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Québec	**Elementary education** (elementary schools)						**Secondary education** (secondary schools and vocational training centres)					**College education** (*CEGEPs*)				
									AVE			General DCS				
										DVS[a]		Technical DCS				
											AVS					
Ontario	**Elementary education** (elementary schools)										PAJO		**Post-secondary education** (CAAT)			
									Secondary education (secondary schools)				Cert.			
													Diploma			
													Applied degree			
Massachusetts	**Elementary education** (elementary schools)				**Secondary education**								**Post-secondary education** (community colleges and state colleges)			
					First cycle (junior high schools)			**Second cycle** (high schools)					Cert.			
								Certificate (vocational technical schools)					Associate degree			
													Associate in Arts Degree			
Lithuania	**Elementary education** (elementary schools)				**Secondary education**								**Post-secondary education**			
					Lower secondary education (basic schools)						**Higher secondary education** (secondary schools)		Level 4 (vocational schools)			
							Level 1 (vocational schools)				Level 2 (vocational schools)		Specific Qualification (colleges)			
											Level 3 (vocational schools)					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

a. In general, to access programs leading to a Diploma of Vocational Studies (DVS), students must have completed the third or fourth year of their secondary education, i.e. having accumulated 9 or 10 years of schooling. Note that to access certain programs, students must have acquired credits for courses in the fifth year of secondary education or have earned the Secondary Studies Diploma (SSD), meaning that they begin the programs in question after accumulating 11 years of schooling.

2 The sharing of responsibilities among Lithuanian authorities for programs leading to a trade or an occupation within the education system

The second chapter of this report is devoted to presenting how the Lithuanian authorities involved in programs leading to a trade or an occupation within the education system share responsibilities. It covers the following six themes:

- overview of the Lithuanian education system
- reforms to the vocational training system in Lithuania
- structure of post-secondary education in Lithuania
- secondary-level and post-secondary vocational training in Lithuania
- management of vocational programs of study
- evaluation of learning

2.1 Overview of the Lithuanian education system

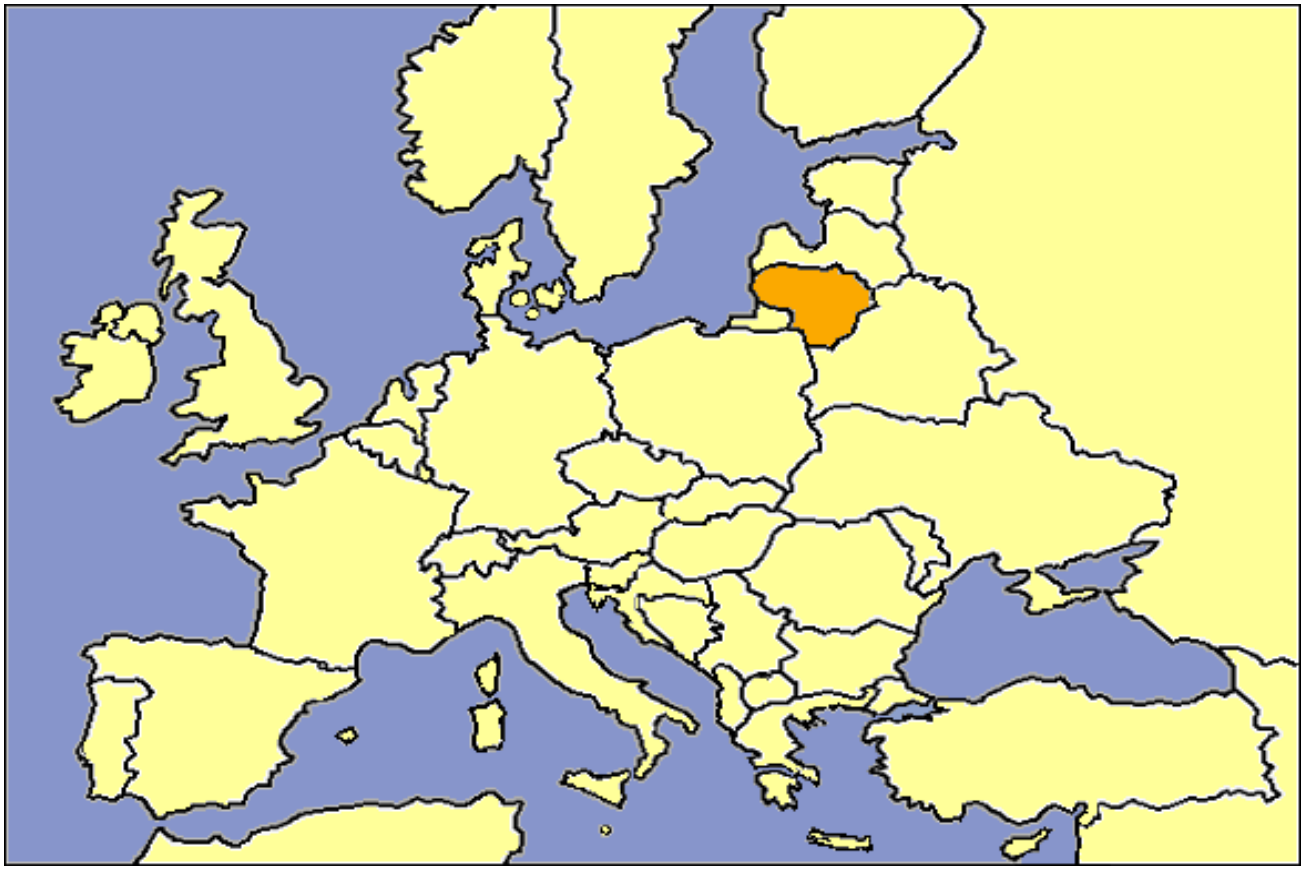
Providing an overview of Lithuania's education system consists of succinctly describing its essential characteristics, i.e. the ministries responsible for vocational training and the levels of education that exist there. However, before beginning this task, it is worth taking a few lines to briefly depict Lithuania.

2.1.1 Brief description of Lithuania

Lithuania is a European country located on the eastern shore of the Baltic Sea, north of Poland and south of Latvia (see Figure 2.1). It is the southernmost of the three Baltic states, i.e. Lithuania, Latvia and Estonia. Lithuania covers a surface area of 65,300 km^2, nearly twice the area of Belgium, and has a population of 3.4 million, making it the most populous of the three Baltic states.

Between 1940 and 1990, Lithuania was annexed by the Union of Soviet Socialist Republics (USSR). The Soviet occupation lasted 50 years and came to an end on March 11, 1990 when the Executive Council of the Republic of Lithuania declared its independence. Many reforms were subsequently undertaken in response to the challenges of passing from a controlled economy to a market economy and meeting the requirements of the European Union to achieve integration with the European market, which took place on May 1, 2004.

Figure 2.1 Geographic position of Lithuania within Europe



2.1.2 Ministries responsible for vocational training

In Lithuania, the Ministry of Education and Science (MES) bears general responsibility for the education system while the responsibilities of vocational training are shared between two ministries. Vocational training within the education system comes under the Ministry of Education and Science, while learning programs in the workplace come under the Ministry of Social Security and Labour (MSST) (see Figure 2.2).

To be more precise, the responsibilities of the Ministry of Education and Science with regard to education consist of:

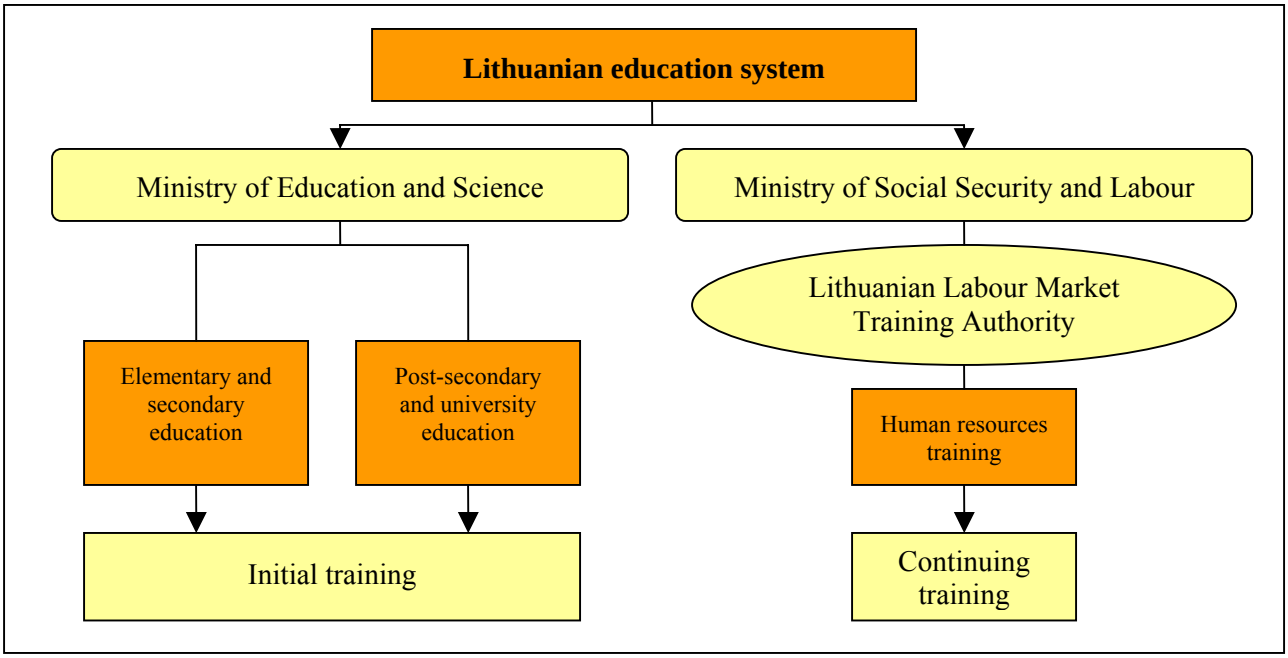
- developing and implementing state programs of study
- determining national education standards and controlling their application
- defining the criteria and methods used to finance education
- creating adequate conditions for learning in educational institutions
- implementing the national quality assurance system
- encouraging education research, training of educators, coordinating teaching apprenticeships and organizing the evaluation of educators

The responsibilities of the Ministry of Social Security and Labour with regard to vocational training in the workplace can be summarized as follows:

- defining and implementing the state policy on vocational training in the workplace
- implementing and upgrading the vocational training system in the workplace
- coordinating the development and administration of the *Lithuanian Classification of Occupations*, which is the national system for classifying occupations

In terms of vocational training, then, the primary functions of these two Ministries focus on establishing the training reference systems based on the appropriate professional activities reference system, organizing and supervising the provision of training and implementing and evaluating the training system. Certain responsibilities of the Ministry of Education and Science with regard to developing vocational training are assumed by the Methodological Centre for Vocational Education and Training (MCVET). It organizes the development and validation of the *Vocational Education and Training Standards* and the vocational training programs they are based on, develops pedagogical materials and provides pedagogical support to educational institutions. The Ministry of Social Security and Labour delegates its functions of organizing and implementing workplace training to the Lithuanian Labour Market Training Authority (LLMTA). To this end, the LLMTA is responsible for implementing the workplace training policy and organizing information and orientation services related to vocational training.

Figure 2.2 Ministries responsible for education in Lithuania



2.1.3 Levels of education

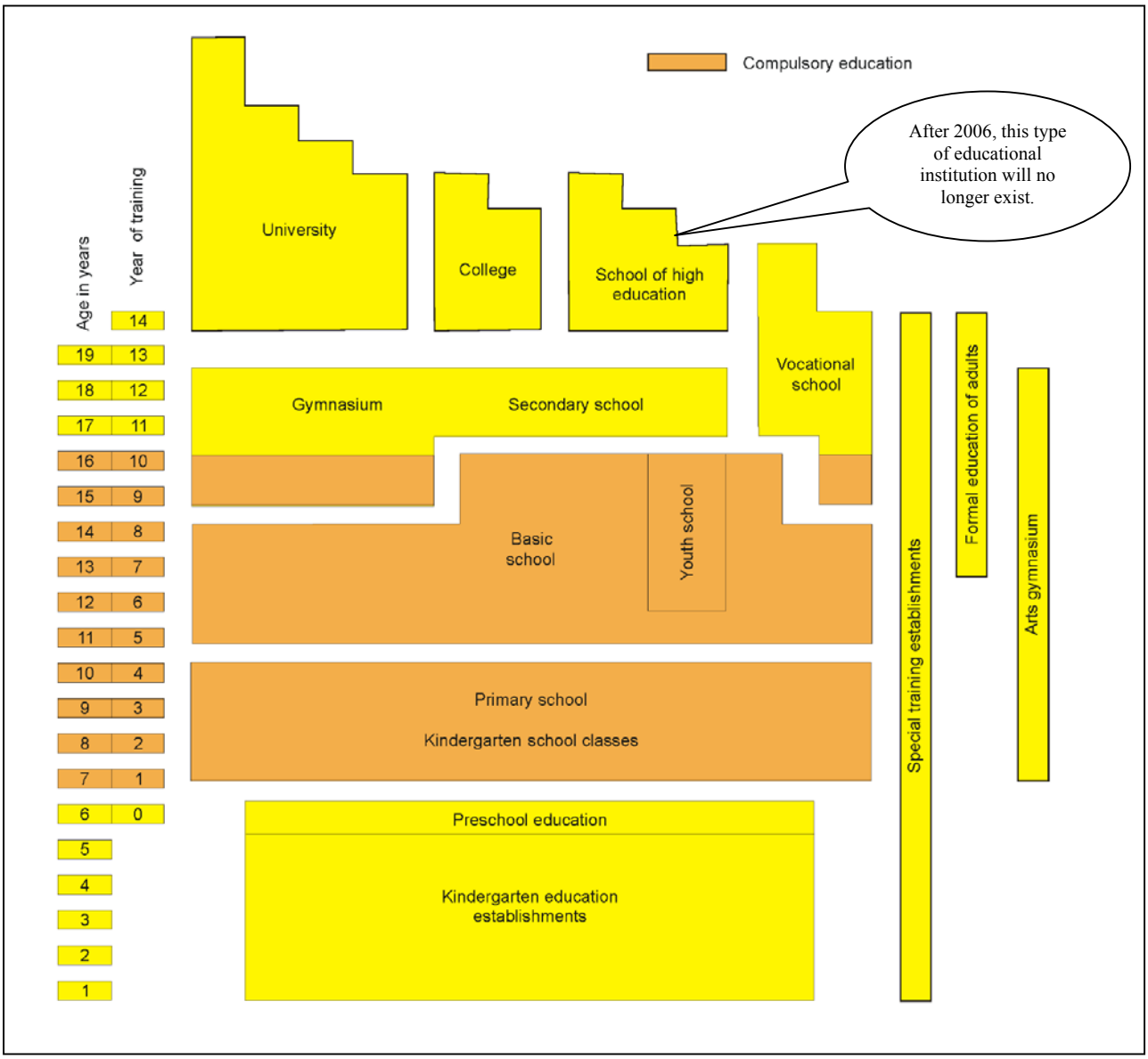
In Lithuania, education is mandatory from ages 7 to 16. Elementary education, from first to fourth grade, is offered in an elementary school (see Figure 2.3). Secondary-level education has two phases, i.e. a lower level and an upper level. The lower-level of secondary education runs from fifth to tenth grade and is recognized with the Basic-School-Leaving Certificate. Students age 14 and up have the option from the eighth grade of entering a vocational training program offered in a vocational school.

After completing the lower secondary level, students have a choice between continuing their secondary studies or taking vocational training offered at the secondary level. Upper secondary-level studies are offered in secondary schools or in the *gymnasium*,[20] covering the eleventh and twelfth grades. They last two years and result in a Maturity Certificate.[21] After tenth grade, students can also choose a vocational training program in a vocational school. Vocational training programs take from two to three years to complete depending on the occupation and are recognized by the Qualified Worker's Diploma, for the two-year programs, and by both the Qualified Worker's Diploma and the Maturity Certificate, for the three-year programs.

Students who wish to undertake post-secondary or university[22] studies can register at a college[23] or university. Colleges are post-secondary educational institutions that offer vocational programs of study that focus on practical training rather than theoretical training. Programs of study offered by colleges take from three to four years to complete and result in both a Higher Education Diploma and professional credentials (Specific Qualification). The universities offer programs of study over a four-year period that lead to a bachelor's degree. At the end of the undergraduate level, students have generally completed sixteen years of schooling.

20. A *gymnasium* is a school that offers general training from the 9th to the 12th grades but more intensively than in secondary schools. The *gymnasium* existed before the Soviet regime and was re-established after Lithuania's independence in 1990 in an effort to introduce a form of education that differed from the Soviet model.
21. Students whose results in their upper secondary studies do not meet established national standards receive the Certificate of Learning Achievement.
22. As noted, for the purposes of this literature review, "post-secondary studies" refers to programs of study offered in Lithuanian colleges and "university studies" refers to those offered in Lithuanian universities. For more information, refer to the conceptual framework described in section 1.3 of this report.
23. After 2006, professional colleges, also called Schools of High Education, will no longer offer post-secondary vocational training programs.

Figure 2.3 Principal training paths of the Lithuanian education system



Source: Ministry of Education and Science of the Republic of Lithuania, *Education in Lithuania 2003. Figures and Trends*, (Vilnius, Ministry of Education and Science, 2004) p. 6. Note: Éduconseil inc. updated this figure in March 2005.

2.2 Reforms to the vocational training system in Lithuania

Discussion of the reforms to the vocational training system in Lithuania focuses on four elements: the context of the reforms, the objectives of the reforms, the completed and planned reforms and evaluation of the reforms.

2.2.1 Context of the reforms

The reorganization of the Lithuanian education system relates to Lithuania gaining independence in March 1990. The shift from a controlled economy to a market economy has led Lithuania to adapt its vocational training system to this new context. In effect, Lithuania, like all states formerly under the control of the USSR, inherited a highly centralized vocational training system designed mostly in response to the specific needs of a controlled economy. Within this economic system, vocational training was linked to the major needs of state businesses and, more specifically, to the development of agriculture. Consequently, when Lithuania gained independence, its network of small educational institutions were dispersed geographically and offered vocational training for jobs that relied on the execution of simple and repetitive tasks. It was thus imperative to reorganize the vocational training sector to enable the workforce to adapt to the new needs of an emerging market economy.

After gaining independence, Lithuania sought to join the European Union. Accordingly, the country undertook substantial reforms to upgrade its vocational training system. The reforms specifically targeted harmonizing Lithuania's training system with those in use in other member countries of the European Union.

As a result, the many changes to the vocational training system have related to both general and specific factors. The general factors concern changes on a worldwide scale, among them:

- the shift from a traditional economy to the so-called knowledge society based on knowledge, skills and technological innovation
- on-going and accelerated development of information and communications technologies
- delocalization of business, which can be defined as the transfer of the production of goods and services, generally with low added value, to areas with low labour costs

The specific factors behind changes in the vocational training system take into account the swift move from a controlled economy to a market economy, which has prompted the reorganization of complete sectors of economic activity. In effect, there was quick growth in economic activity supported by private capital and, conversely, a significant decline in businesses supported by the public sector, a phenomenon that has seen the disappearance of several large state businesses and the emergence of small and medium-size private businesses. These changes to the industrial structure have had significant repercussions on the structure of employment, which has reduced the number of jobs that rely on the execution of simple and repetitive tasks and fostered jobs that require qualified labour with the essential skills associated with reading, calculation, oral communication, the capacity to reason, teamwork, the use of computers and lifelong learning. All these changes to the economic environment have prompted the Lithuanian government to reform the structure and content of vocational training.

In short, the reforms by the Lithuanian government have consisted of adapting the vocational training system in response to both the country's specific needs for human resources training and the European Union's membership requirements for integrating the Lithuanian workforce.

2.2.2 Objectives of the reforms

There have been three distinct phases to the reforms of the vocational training system. The first began immediately after Lithuania gained independence and ended in 1993. It focused on the most pressing changes to the vocational training system arising from the need to adapt as a controlled economy transitioned to a market economy. The second phase began in 1994 and ended in 1996. Actions taken in this phase sought to evaluate and make official the changes of the first phase and to adopt the European Union's orientations on vocational training. The third phase began in 1996, with reforms aimed at improving the quality of vocational training to meet international standards. It was during this period that the *White Paper on Vocational Education and Training in the Republic of Lithuania* was drafted.

The *White Paper* presents the principles and orientations behind the reforms to vocational training which subsequently gave rise to more recent reforms. This document was drafted following publication by the European Union of several documents that provide its member countries with orientations aimed at fostering harmonization of their education and training systems. Lithuania, with hopes of becoming a member of the European Union, had to take the orientations defined in these documents into account and apply them to its own vocational training system. The measures proposed in the *White Paper* thus sought to harmonize the Lithuanian vocational training system with those of the other member countries of the European Union and to ensure that accreditation granted in Lithuania will be recognized by the other member countries. The *White Paper on Vocational Education and Training in the Republic of Lithuania* was issued in 1999 and, in accordance with the recommendations it offered, amendments were made to the *Law on Vocational Education and Training* in October 2000.

The reforms proposed in the *White Paper* concern the following general objectives:

- ensuring vocational training is accessible to all people who wish to acquire professional credentials, whether through initial training or continuing training
- ensuring the content and credentials granted in Lithuania are compatible with what is recommended in the member countries of the European Union
- designing a flexible vocational training system that is adaptable to swift changes in a democratic society under construction

The more specific objectives arising from these general objectives concern:

- providing the appropriate conditions to enable all people who wish to pursue training leading to recognized professional credentials to do so
- creating the optimal conditions to encourage people to take part in the continuing training process
- guaranteeing continuity and progression through the training paths by eliminating training programs that lead to dead ends
- reorganizing the network of educational institutions to make it more effective and reduce costs
- creating a control mechanism to monitor, analyze, evaluate and forecast changes affecting vocational training

- providing information on vocational training programs and advising students and adults on their career choices
- guaranteeing access to vocational training for people with special needs

2.2.3 Completed and planned reforms

As noted, the first phase of the reforms began in 1990 and ended in 1993. This decentralizing phase saw the elimination of central institutions that until then had supported the vocational training system and replaced them with new ones that were better adapted to the new socio-economic context. In 1990, the Department of Vocational Education and Training was created within the Ministry of Education and Science, and responsibility for the development of training programs was decentralized and ceded to the educational institutions. In 1991, vocational training institutions were reorganized. In 1992, the Lithuanian Labour Market Training Authority (LLMTA) was created, which led to a revision of the national classification of occupations aimed at reducing the number of occupations and specializations, in turn opening the way to the development of new programs designed to develop training for a multi-skilled workforce.

The second phase, as noted, ran from 1994 to 1996. It made new training programs official and adopted the recommendations of the European Union, resulting in the creation of the *Register of Study and Training Programmes* and the Methodological Centre for Vocational Education and Training (MCVET) in 1996.

The third phase began in 1996 and is still on-going. It is supported by the implementation of the PHARE program in 1995, which is the principal instrument of financial and technical cooperation between the European Union and the candidate countries of Central and Eastern Europe. It was created in 1989 to support the reform process and the economic and political transition in Poland and Hungary. Following the European Council of Essen in December 1994, PHARE became the financial instrument of the pre-membership strategy with the ultimate goal of membership for ten Central European countries in the European Union, among them Lithuania. In Lithuania, among other things, the PHARE program supported reforms to vocational training offered at the secondary level and at the post-secondary level.

The *Law on Vocational Education and Training* was adopted in 1997. It governs vocational training in the education system and in the workplace and establishes the changes made to the system. In 1998, the framework for developing the occupational activity reference systems and the first actual related reference system were approved. That same year, responsibility for the final evaluation of skills acquired through vocational training programs was gradually turned over to the Chambers of Commerce, Industry and Crafts and the Lithuanian Chamber of Agriculture. In 1999, the *White Paper on Vocational Education and Training* was released. Also in 1999, the Industrial Lead Bodies, which are advisory bodies composed of representatives of employers and labour in various sectors of economic activity, were created to work with the Methodological Centre for Vocational Education and Training and the Lithuanian Labour Market Training Authority in developing and validating the training reference systems.

Pursuant to the recommendations of the *White Paper*, the *Law on Higher Education* was adopted in March 2002. It called for the reorganization of post-secondary education in an effort to coordinate

with the post-secondary education offered in other member countries of the European Union and to meet the criteria of the International Standard Classification of Education (ISCED-1997),[24] under which only individuals who have completed secondary studies can be admitted to a post-secondary program of study. The Law also mandated the creation of an education system with two types of institutions: universities, which offer university programs of study, and colleges, which offer post-secondary vocational training programs. Under the plan, the professional colleges will be converted partially to colleges and partially to vocational schools offering secondary-level vocational training programs. The reorganization of the network of educational institutions began in 2000 and is expected to be completed in 2006.

In short, the principal measures adopted since 1990 with regard to vocational training include:

- creating a occupational qualifications model with reference systems for professional activities, training and evaluation
- delegating development of training programs to educational institutions
- transferring the final evaluation of learning achieved through secondary-level vocational training to the Chambers
- reorganizing the network of educational institutions
- creating an education system with colleges and universities

2.2.4 Evaluation of the reforms

The reforms in Lithuania between 1990 and 2003 have been major. They have dealt with political orientations, management, financing and the organization of vocational training, training programs and the role of social partners.

An evaluation of the results of the reform conducted under the aegis of the European Training Foundation (ETF) post-2000 and published in 2004[25] concluded that, overall, the implementation of the reforms lacked consistency and the decisions made at various levels were not always coherent. The authors of the study note that the principles and priorities guiding the reforms were not always respected and as a result, the reforms were applied unequally. There has been time for the situation to evolve since the evaluation study was produced, but it is nonetheless worth examining some of its elements.

Among the positive points of the reforms, the authors praise the reforms to training programs, rationalization of training offerings and the participation of social partners in planning, managing and evaluating the vocational training system. With regard to new training programs, another ETF report published in 2002[26] in advance of Lithuania's admission to the European Union stresses that

24 It should be noted that ISCED-1997 was developed by the United Nations Organization for Education, Science and Culture (UNESCO) in the early 1970s. It is a classification instrument that collects, compiles and shapes educational statistics available in various countries. This classification has been revised several times, in particular in 1997 following a major international consultation.

25 Rimantas LAUZACKAS, Eugeijus DANILEVICIUS, Odeta GURSKIENE, *Profesinio rengimo reforma Lietuvoje. Parametrai ir rezultatai* (Vytauto Oioziojo Universiteto Leidykla, 2004), p. 162-170.

26. EUROPEAN TRAINING FOUNDATION, *Vocational Education and Training and Employment Services in Lithuania. Monographs Candidates Countries* (Luxembourg: Official Publications of the European Communities, 2002), 101 p.

they are now developed in accordance with skills and grant that acquiring essential skills fosters the development of individual employability, thus increasing ability to adapt to the changing needs of the work world.

However, the evaluation study notes that training of instructors remains insufficient and that professional advisory and orientation services have had difficulty adapting to the new socio-economic context of the country. The study also notes authorities' inability to increase students' interest in vocational training, a training path that has fallen in prestige. To this end, the quality and relevance of vocational training are questioned. As an indicator, note that before 1999, 35% of students continuing their studies after the mandatory period chose to take vocational training. In 2005, this figure was only 23.5%. It must be noted, however, that in 1999, the period of mandatory education was changed from 9 to 10 years, so the cohort that would have completed lower secondary studies that year only did so in the following year.

The previously cited ETF report published in 2002 states that several measures implemented to guarantee continuity of training paths are not effective given the existence of institutional barriers and the lack of financial resources for their application. The report indicates that very few students who have completed a vocational training program offered at the secondary level go on to pursue post-secondary vocational studies in continuing training in the same field of specialization based on recognition of the training credits completed in the previous program. The report also notes that it is not possible for students who have completed a vocational training program in a college to then continue their training at university. To this end, the report recommends implementing the measures proposed in the *White Paper on Vocational Education and Training in the Republic of Lithuania* to foster continuity of training paths and advocates that bridges be established between the various levels of education.

The evaluation study published in 2004 advances the hypothesis that the problems observed in implementing the reforms are partly attributable to the lack of experience of those responsible and to the insufficient financing granted to the educational institutions tasked with bringing the reforms to fruition.

2.3 Structure of post-secondary education in Lithuania

Discussion of the structure of post-secondary education in Lithuania covers the mission of the colleges themselves and their legal organization. The following paragraphs deal with this subject.

2.3.1 Mission of colleges

Creation of the network of Lithuanian colleges as it exists today began with the adoption of the *Law on Higher Education* in March 2000. The Law provided for the creation of a binary education system with two types of institutions: universities offering university programs of study and colleges offering vocational programs of study.

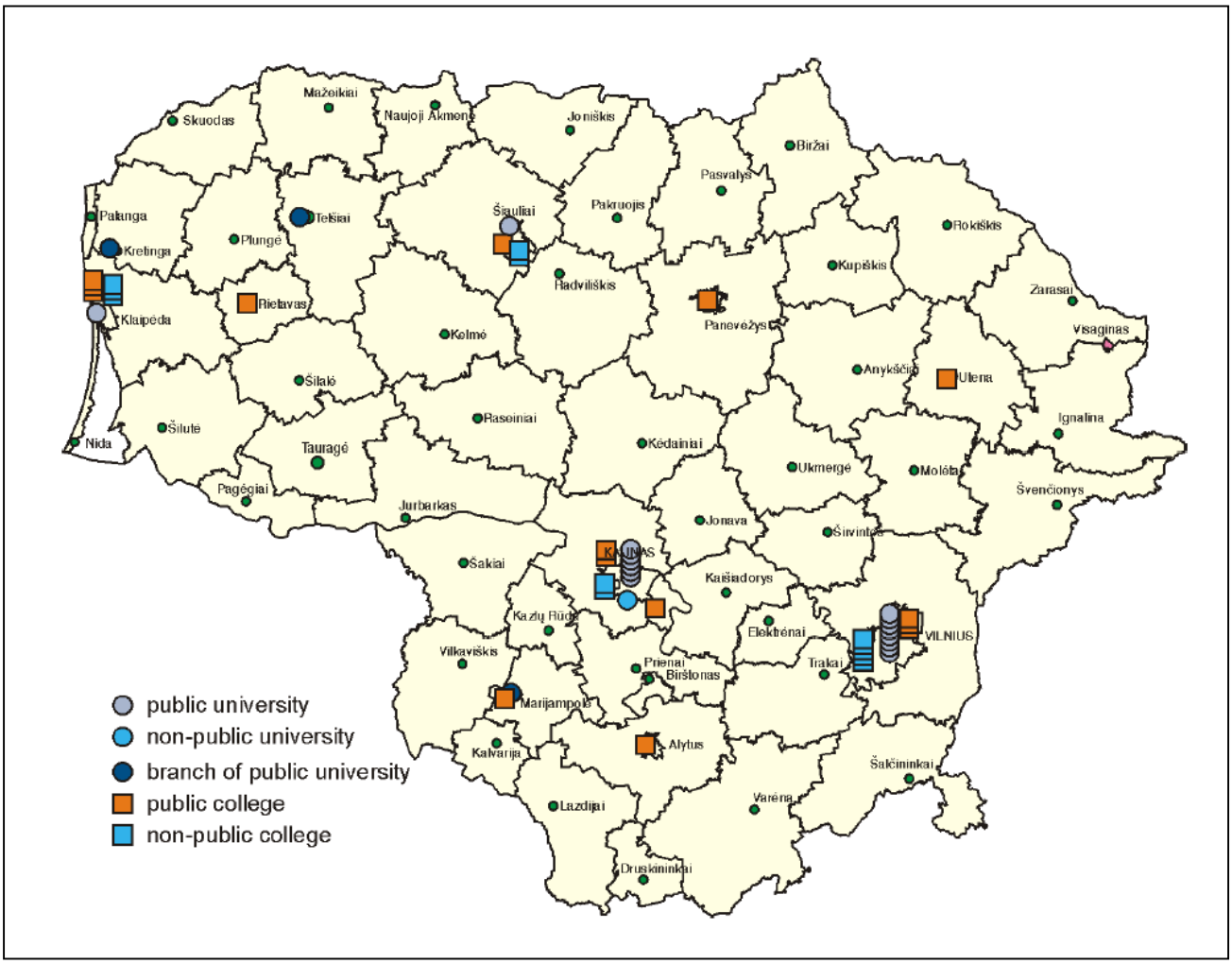
The mission of the colleges is to offer vocational programs of study based on practical training designed to train technicians. Colleges aim to meet the needs of the work world, support regional

economic and social development and contribute to the dissemination of culture and knowledge within society.

In 2003, there were 26 colleges, including 11 private institutions (see Figure 2.4). Nearly 150 different programs of study are offered by colleges, covering 22 training sectors.[27] The number of programs of study offered in the different colleges varies widely but colleges with a greater variety of programs of study are generally located in the largest Lithuanian cities, i.e. Vilnius (pop. 578,400), Kaunas (412,639), Klaipėda (202,451), Šiauliai (146,563) and Panevėžys (133,695). The five colleges with the greatest variety of programs are: Kaunas College (49 programs), Vilnius College (44), Marijampole College (22), Panevėžys College (21) and the Klaipeda Business and Technology College (20). There are colleges with programs aimed at specific fields of specialization. This is the case for the Kaunas College of Forestry and Environmental Engineering with programs focusing essentially on the fields of landscape design, land management, hydraulic engineering and forestry, and the Lithuanian Maritime College with programs of study related to port and maritime activities. We would also note that several colleges specialize in programs of study related to business administration.

27. Note that, while no program of study is offered by all the colleges, the most widespread program, the *Accounting* program, is available in 18 of the 26 colleges. This is followed by Business Studies at 11 colleges and the Legal Studies program at 9 colleges. For more information on programs of study offered in Lithuanian colleges, refer to the Web site of the Lithuanian Education Information System <www.mokykla.smm.lt>.

Figure 2.4 Distribution of colleges and universities within Lithuania



Source: MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF LITHUANIA, *Education in Lithuania 2003. Figures and Trends* (Vilnius, Ministry of Education and Science, 2004), p. 28.

2.3.2 Legal organization of colleges

Discussion of the legal organization of colleges focuses on two significant aspects, the legislative framework and management bodies.

The legislative framework

The activities of the colleges are governed by the *Law on Higher Education*, which defines the principles leading to a diploma and the limits on the independence of these educational institutions along with the control of their activities by the state. We would note that colleges enjoy considerable independence, as set out in the statutes of each of them and approved by the government. The Law also defines the rights and responsibilities of the teaching staff, the legalities of creating, reorganizing and closing a college, the principles of evaluating and administering , the principles of

developing and approving programs of study, the general conditions of admission to colleges and the principles of financing them.

The *Law on Higher Education* also defines the rules of governance for colleges. They specify that colleges must be run by an independent board known as the Academic Council and have a monitoring body to represent the public, which is known as the College Council.

Management bodies

In Lithuanian colleges, the principal management bodies are the Academic Council and the College Council.

The Academic Council

The composition of the Academic Council is set out in the college's statutes. However, the *Law on Higher Education* specifies that at least 10% of the council members must be students elected by their peers and at least 10% of the council members must be representatives of other colleges elected in accordance with the statutes of the college. In addition, each field of studies at the college must be represented by at least one person.

Under the *Law on Higher Education,* the Academic Council is responsible for managing and administering the affairs of the college. To this end, it adopts the college's statutes and presents them to the government for approval. It prepares the college's five-year development plan and, after approval by the College Council, submits it to the Ministry of Education and Science (MES). It determines the training to be offered, i.e. the programs of study, and presents it to the MES for approval. Finally, it approves the college's annual report, which includes the financial statements prepared by the college administration.

The College Council

Each college must have a College Council, which is composed of at least nine people and at most 21. A third of the members of the College Council are appointed by the Academic Council and must include the college director and at least one student.[28] Another third of the members of the College Council are representatives of the fields of science, culture, the arts, economics and local public institutions. They are appointed by the Ministry of Education and Science. Finally, the last third of the members are appointed by the director of the college.

The College Council reviews the college's five-year development plan prepared by the Academic Council and the college's annual report and makes recommendations to the Academic Council. It evaluates needs related to economic, social and cultural development and proposes modifications to the college's programs of study along with potential new ones.

28. Note that the college director is elected by the College Council.

2.4 Secondary-level and post-secondary vocational training in Lithuania

Discussion of secondary-level and post-secondary vocational training in Lithuania focuses on four elements. They are the principal program of study characteristics, the pedagogical organization of training, college admission and continuity of training paths.

2.4.1 Principal program of study characteristics of

Lithuania's vocational training programs fall into two categories: those offered at the secondary level by vocational schools and those offered at the post-secondary level by professional colleges and the colleges.

Secondary-level vocational training

Vocational training programs at the secondary level cover four training paths that differ based on the content of the program, the period of study, the student's age and the previous education required for admission. Vocational training programs offer both general training and occupation-specific training, the latter involving both practical and theoretical components. In general, the practical component represents between 60% and 70% of the training time allocated to vocational training. Secondary-level vocational training programs are offered in vocational schools. In 2003, there were 80 vocational schools in Lithuania (see Figure 2.5).

The first training path involves students age 14 and up who have not completed the lower secondary studies. It comprises two programs of study. The first lasts two years and results in the Qualification Certificate. The second lasts three years and results in both the Qualification Certificate and the Basic-School-Leaving Certificate, which recognizes the completion of the lower secondary level. Students who have acquired the Basic-School-Leaving Certificate can go on to pursue upper secondary studies or vocational studies.

The second and third training paths are intended for students who have completed their lower secondary studies. The second training path comprises two-year programs that enable students to obtain a Qualified Worker's Diploma. The third training path comprises three-year programs that are intended for students who have completed the lower secondary studies and wish to obtain both the Qualified Worker's Diploma and the Maturity Certificate, which recognizes the completion of the upper secondary level. Students who have acquired the Maturity Certificate can go on to pursue post-secondary or university studies.

Finally, the fourth training path is for students who have completed the upper secondary studies[29]. It takes one year, one and a half years or two years to complete and leads to the Qualified Worker's Diploma.[30]

29. Note that level 4 vocational training programs, although presented here with secondary-level programs offered by vocational schools, are part of Lithuania's post-secondary education system.

30. An observation can be drawn from comparing the principal characteristics of vocational training offered at the secondary level in Québec to those of the four training paths of the vocational training programs at the secondary level in Lithuania. Lithuania's first training path comprises programs of study intended for people age 14 and up who have not completed the lower-level secondary studies but wish to obtain a basic professional qualification (Qualification

Post-secondary vocational training

There are two types of vocational training programs at the post-secondary level: the vocational training programs offered until 2006 by professional colleges and the vocational training programs offered by colleges.

Post-secondary vocational training programs offered by professional colleges last three years and enable students to acquire the skills necessary to hold a job within an occupation or group of occupations and also provide general training. Students who have completed a post-secondary vocational training program obtain both a Professional College Diploma and professional credentials. However, since 2003, no more students are being admitted to these training programs. A reorganization of the professional colleges was undertaken in 2000, a process that will see some of these professional colleges become colleges. Status as a college will be granted to professional colleges that have met the standards of quality required by post-secondary educational institutions. Professional colleges that do not obtain status as a college will become vocational schools. The reorganization process will end in 2006.

Post-secondary vocational training programs offered by colleges last three or four years. These programs enable students to acquire the skills necessary to hold a job as a technician in a discipline or group of related disciplines. They offer both general training and occupation-specific training. The general training relates to students' mother tongue (Lithuanian), humanities and social sciences, natural sciences, mathematics, computer science and European languages. Only the courses in Lithuanian are mandatory while the other courses relating to the general training are options[31]. Students who have completed a program of study offered by a college obtain both a Higher Education Diploma and professional credentials (Specific Qualification).

Certificate). It is similar to Québec's programs of study leading to the Attestation of Vocational Education (AVE), which are intended for people who want to enter the labour market quickly and acquire the skills for a semi-specialized occupation by the third year of secondary studies. The second training path offers programs for people who have completed the lower-level secondary studies and wish to obtain the Qualified Worker's Diploma. In this, the programs of the second level relate to programs of study that lead to a Diploma of Vocational Studies (DVS), which are accessible from the third or fourth year of secondary studies and are intended for people preparing for a specialized occupation without necessarily obtaining the Secondary School Diploma (SSD). The third training path covers programs intended for people who have completed lower-level secondary studies and wish to obtain the Qualified Worker's Diploma simultaneously with the Maturity Certificate. These third-level programs, then, are similar to programs of study leading to the DVS and SSD, which are accessible from the third or fourth year of secondary studies and intended for people who wish to acquire both the skills necessary to perform a specialized occupation and general basic knowledge. The fourth training path comprises programs of study intended for people who, after obtaining the Maturity Certificate, wish to obtain the Qualified Worker's Diploma. These programs relate to programs for people who have obtained the SSD and wish to prepare for a specialized occupation and obtain the DVS.

31. The situation described with reference to the general training component of programs offered by colleges existed at the time of this literature review. Lithuanian authorities are currently studying the issue and the situation is expected to undergo changes.

Figure 2.5 Distribution of vocational schools within Lithuania

Source: MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF LITHUANIA, *Education in Lithuania 2003. Figures and Trends* (Vilnius: Ministry of Education and Science, 2004), p. 27.

2.4.2 Pedagogical organization of training

The period of study, the proportion of theoretical training to practical training and a list of mandatory subjects covering both general and specific training are set out by the Ministry of Education and Science, which determines the boundaries for developing college programs. Using these boundaries, colleges are responsible for determining the pedagogical organization of training, which relates to the study schedule and planning of the courses to be offered in the programs of study.

Generally speaking, the school year begins September 1 and ends June 30 and is divided by two weeks in December for Christmas vacation. There are two semesters, autumn and winter. The duration of sessions varies from 20 to 22 weeks, including two weeks for final exams. On average, there are 28 hours of classes per week. Note that the duration of the semesters is a decision made by

the department or faculty and is subject to approval by the dean of the faculty. The duration of each session can thus vary in the various programs of the same college.

Planning of courses to be offered in the programs is also under the jurisdiction of the colleges. For example, Utena College requires that the general training offered under its *Business management* program must be taken by students during their first two semesters while at Kaunas College the same courses are spread over the three years of the program.

2.4.3 Admission to colleges

The conditions of admission to colleges are defined by the colleges in conjunction with the Department of Science and Higher Education of the Ministry of Education and Science, in accordance with the requirements set for the program in question under the *General Requirements for Programme Development*. Admission conditions must be made public at least two years before the admission period in question.

The Maturity Certificate is the minimum condition of college admission. However, since the number of places in each program is limited, colleges have a selection process to assess the candidate students. At Vilnius College, for example, selection of students is based on a *competitive mark* calculated on the basis of a formula that takes into account marks achieved on the national exams students must take at the end of the secondary program of study or vocational training program and recorded marks at the end of the program of study. Students who have completed a level two vocational training program, which is recognized with a Qualified Worker's Diploma, and who wish to continue with post-secondary studies must first obtain the Maturity Certificate through an adult education school. As for students who have completed a level three or level four vocational training program, which are recognized with both a Qualified Worker's Diploma and the Maturity Certificate, they can continue on to post-secondary studies. Finally, admission to certain programs of study, generally those related to the arts, is also subject to admission exams intended to evaluate skills specific to the nature of the program of study.

2.4.4 Continuity of training paths

As noted, in 1999, the Ministry of Education and Science and the Ministry of Social Security and Labour issued a document entitled *White Paper on Vocational Education and Training in the Republic of Lithuania*. The *White Paper* describes the strategic orientations of the reforms to the Lithuanian vocational training system, which mainly concern meeting the requirements of the European Union with regard to labour training, better matching training availability to market needs and increasing access to vocational training.

The measures proposed in the *White Paper* are intended, among other things, to orient the design of programs of study to guarantee continuity of training paths. To this end, the *White Paper* recommends harmonizing level three and level four vocational training programs offered at the secondary level with post-secondary vocational training programs offered by colleges. Students who wish could then continue their training after completing a level three or level four vocational

training program. Their credits would be recognized, thus preventing duplication of learning. The students would thus be able to earn a second diploma within a shorter training period.

We would note that the measures proposed by the *White Paper* to foster continuity of training paths do not deal with the progression of studies between post-secondary education and university education. This issue comes under the *Law on Higher Education,* which says that programs of study offered by colleges can include modules coordinated with programs of study offered by universities. A college can obtain authorization to offer university programs of study in certain fields based on the rules set by the government. Finally, colleges have the right to reach agreements with universities to coordinate programs of study.[32] However, as of 2005, it was still not possible for graduates of vocational training programs offered in colleges to continue on with university studies in the same field of specialization based on recognition of the training credits completed during the post-secondary level training. In fact, although colleges may reach agreements with universities on coordinating the programs of study they offer, students who wish to benefit from the harmonization of vocational and university programs of study do not yet enjoy any advantages. This means that, to date, harmonization does not result in ensuring acquired skills are recognized, thereby avoiding overlapping learning or reducing the duration of studies.

2.5 Management of vocational programs of study

This section discusses the sharing of responsibilities between the Ministry of Education and Science and the educational institutions with regard to management of vocational programs of study. The following elements are discussed: the occupational qualifications model in Lithuania, the development and approval process for programs of study and their evaluation.

2.5.1 The occupational qualifications model in Lithuania

In Lithuania, earning occupational qualifications or credentials resulting from the process leading to the acquisition of skills required to perform an occupation, involves two distinct settings, i.e. the education system and the workplace. Although they are distinct loci for training, the authorities responsible for providing training in the educational environment (vocational schools, colleges, and the Ministry of Education and Science) and in the workplace (Labour Market Training Centres, the Ministry of Social Security and Labour, and the Lithuanian Labour Market Training Authority) use the same occupational activity reference system and the same evaluation reference system for each occupation or group of related occupations.

The principal components of the Lithuanian occupational qualifications model, as illustrated in Figure 2.6, concern the occupational activity reference system, the training reference system and the evaluation reference system.

32. Such agreements are sometimes referred to as articulation agreements. According to the Grand dictionnaire terminologique of the Office québécois de la langue française <www.oqlf.gouv.qc.ca>, the term articulation is defined as follows: “Structures linking levels and programmes of education or education with employment and allowing movement between programs at the same level or between education and employment.”

The occupational activity reference system

The occupational activity reference system (*Job Profile*) provides a description of the tasks and responsibilities associated with an occupation taken from the official list of occupations within the *Lithuanian Classification of Occupations*. This is the document on which the training and evaluation reference systems are based. The occupational activity reference system is developed and approved by the Ministry of Education and Science (MES) and the Ministry of Social Security and Labour (MSSL) in conjunction with social partners such as employers and unions.

The training reference system

Training programs in the education system and learning programs offered in the workplace are developed from the training reference system, which defines the minimum training required to perform an occupation. The training reference system presents the occupation as a result, i.e. what must be carried out by the qualified person, broken down into training modules that correspond to skill elements. Each training module involves a coherent set of skills to acquire and performance criteria related to mastery of the skills.

Authorities responsible for providing training in the educational environment and in the workplace use distinct training reference systems. The *Vocational Education and Training Standard* serves as the reference system for developing training programs for use in the educational environment while the *Standard for Qualification* is the reference system for developing training programs offered in the workplace.

The *Vocational Education and Training Standard* is the document on which the vocational programs of study are based. It includes the occupational activity reference system, the training reference system and the evaluation reference system. The *Vocational Education and Training Standard* is developed and validated by the Methodological Centre for Vocational Education and Training (MCVET), an institution established by the MES, and by the Industrial Lead Bodies, tripartite advisory bodies composed of representatives of employers, unions and the education system. The Industrial Lead Bodies are accredited by both the Ministry of Education and Science and the Ministry of Social Security and Labour. In 2004, there were fourteen Industrial Lead Bodies representing various sectors of economic activity. Note that there is also a Central Industrial Lead Body, which brings together the chairs of the fourteen Industrial Lead Bodies. These organizations are responsible for setting priorities for developing and evaluating the *Vocational Education and Training Standards*, which are based on analysis conducted to evaluate labour market needs relative to a skilled workforce.

To this end, applications to develop or review a *Vocational Education and Training Standard* are formulated by the different Industrial Lead Bodies and must be forwarded to the MCVET before June 1 of each year. Applications are studied by the MCVET in conjunction with the Central Industrial Lead Body and the Industrial Lead Body that formulated the application. It then prepares a development plan, which is submitted for the joint approval of the Ministry of Education and Science and the Ministry of Social Security and Labour. When the development plan is approved, the MCVET, with the consent of the Industrial Lead Body that formulated the application, sets up a group of three to five experts to develop the *Vocational Education and Training Standard*. Once the group has completed a draft version of the training reference system, the document is submitted to

representatives of educational institutions, employers and unions for validation. The group of experts makes the proposed modifications to the document, which is then submitted for approval by the Industrial Lead Body involved. Finally, the *Vocational Education and Training Standard* is approved by the Ministry of Education and Science and added to the *Register of Study and Training Programmes.*

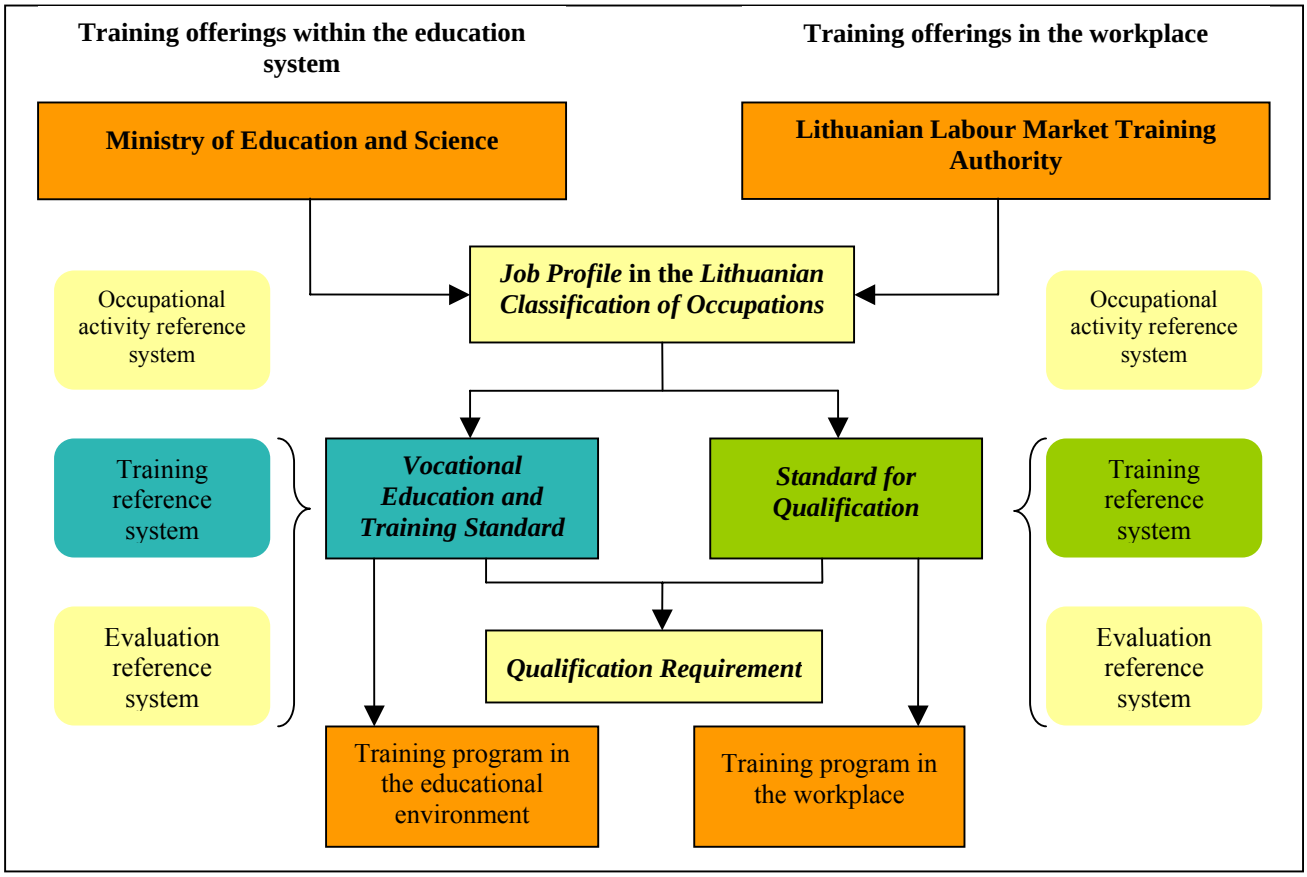
The *Standard for Qualification*, which, as noted, constitutes the reference system for training in the workplace, is developed and validated by the Lithuanian Labour Market Training Authority, an agency of the Ministry of Social Security and Labour. It is then approved by the Ministry of Education and Science and added to the *Register of Study and Training Programmes*.

The evaluation reference system

The authorities responsible for providing training within the education system and in the workplace use the same evaluation reference system (*Qualification Requirement*), which sets requirements for the final evaluation in obtaining professional credentials. The evaluation reference system is presented at the end of the *Vocational Education and Training Standard* and the *Standard for Qualification*. As a result, the development and approval process is the same as for the training reference system.

The evaluation reference system defines the form and duration of the final exam and the evaluation criteria. Consider, for example, the evaluation reference system presented at the end of the training reference system for technical accounting staff. First, the document specifies that students are only entitled to take the final exam when all requirements of the program of study have been satisfactorily completed, i.e. successful completion of all courses in the program, the apprenticeship and the practical exam. Secondly, the document states that the final exam is intended to assess mastery of specific knowledge and the student's practical skills in the occupation in question. Thirdly, the document defines the form of the final exam, i.e. a written test to measure theoretical knowledge and practical skills. Finally, the document specifies which elements of theoretical knowledge will be evaluated on the final exam.

Figure 2.6 The occupational qualifications model in Lithuania



2.5.2 Development and approval process for programs of study

It is important to note straightaway that the conditions of managing vocational programs of study differ depending on whether they are offered in the workplace or through the education network. More specifically, the process of developing and approving programs is based on specific documents and comes under the jurisdiction of different authorities depending on the category they fit into, including:

- customized training programs in the workplace aimed at upgrading the qualifications of those already in the workforce
- official learning programs in the workplace intended to enable workers to bring their skills up to date or maintain them or, if they wish, acquire the skills required to move into the trades covered by these programs
- vocational programs of study at levels 1 to 4 offered by vocational schools, which prepare students for semi-specialized or specialized trades
- vocational programs of study offered by colleges, which prepare students for technical trades

As this literature review focuses on training programs offered in the educational system that prepare students for a trade or profession, it is worth taking a moment to describe the characteristics of the process of developing and approving vocational programs of study offered by Lithuania's secondary and post-secondary education networks.

Development of vocational training programs offered by vocational schools

The assessment of the quantitative and qualitative needs for human resources training is handled by the Methodological Centre for Vocational Education and Training in collaboration with the fourteen Industrial Lead Bodies. This assessment must be conducted every five years using studies whose goal is to ensure that human resources training correspond to labour market needs. The result of these studies is used to determine the *Vocational Education and Training Standards*. In addition to defining the skills to be acquired, the *Vocational Education and Training Standards* provide orientations concerning learning objectives, strategies for evaluating each skill covered by a program, the characteristics of final examinations and admission requirements.

However, management of the provision of secondary-level vocational training programs is shared between the vocational schools and the Ministry of Education and Science. For their part, vocational schools are responsible for evaluating the development needs of the community they serve in the economic, social and cultural arenas and proposing new programs of study to the Ministry of Education and Science. The Ministry itself evaluates the relevance of a new program before approving it.

The development and revision of vocational training programs is a responsibility of the vocational schools. To do this, vocational schools form a program development group composed of representatives of employers and educational circles to better reflect local needs for skilled labour. The program development group must develop the program in accordance with the *Vocational Education and Training Standards* and with the *General Requirements for Programme Development*, which are defined by the Ministry and intended to ensure that programs of study are comparable at all educational institutions that offer them. Thus, the document describing the program must include certain elements taken directly from the *Vocational Education and Training Standards*. These elements are the sector of activity, the skills to be acquired, the program goals, the admission requirements and the duration of the program. The program must also meet the following requirements:

- the program must be developed according to an approach based on the acquisition of skills
- between 60% and 70% of the program credits must be devoted to practical training
- a minimum a 15 weeks of on-the-job training must be included in the last year of study
- between 10% and 15% of the program credits must be used to acquire skills suitable for local needs for skilled labour
- the program must include training modules pertaining to entrepreneurship as well as civil security
- the program must include basic study matter including mathematics, physics, information technology, natural sciences, social sciences, economics, the environment, the Lithuanian language and foreign languages

Each secondary-level vocational training program must also respect a certain presentation structure consisting of a title page with the name of the people in the group that developed the program, the content and purpose of the program as well as a general description, the training reference system involved, the training plan and the educational path, and a description of on-the-job training.

Development of vocational training programs offered by colleges

The responsibilities of developing post-secondary programs of study are shared by the colleges and the Ministry of Education and Science. The Ministry defines national standards for developing programs that lead to a state diploma while the Methodological Centre for Vocational Education and Training supervises the development of the *Vocational Education and Training Standards* that constitute the training reference system. For its part, the Centre for Quality Assessment in Higher Education is responsible for preparing *Guidelines for a Subject Area.* They specify orientations for each program related to admission requirements, the duration of studies, the number of hours allocated to the general training component in comparison to specific training and a list of common mandatory disciplines.

The colleges, working in conjunction with their partners in socio-economic circles, take on local responsibility for developing programs of study. Study programs for specific trades are developed in training blocks defined in the *Vocational Education and Training Standards.* The colleges are free to add training blocks to cover skills not included in the existing training reference system in order to meet the needs of the communities they serve. They are also responsible for determining the appropriate learning activities to foster acquisition of the skills in question and meet the performance requirements of the trade, as set out in the evaluation reference system appended to the training reference system.

Approval of vocational training programs

The approval process for new vocational training programs differs for secondary-level vocational training programs and post-secondary vocational training programs. New vocational training programs at the secondary level are offered by vocational schools and must first be approved by the appropriate Chamber of Commerce, Industry and Crafts or by the Lithuanian Chamber of Agriculture. Then the Methodological Centre for Vocational Education and Training validates the program. To this end, it verifies that the program respects the requirements described in the *General Requirements for Programme Development.* Where the program meets the requirements, the MCVET then entrusts program evaluation to two experts selected from a list of people representing universities, colleges, vocational schools and social partners. Their task is to verify that the program respects the *Vocational Education and Training Standards* in question, that the training and proposed educational path make it possible to acquire the skill elements and that the occupational qualifications of the instructors, the educational materials and the services made available to students are appropriate. The results of the evaluation are submitted to the Methodological Centre for Vocational Education and Training, which reviews them and forwards them to a group of experts for analysis. The group then formulates a recommendation to the Ministry. Finally, when the recommendation is positive, the program is approved and the Ministry adds it to the *Register of Study and Training Programmes*.

For post-secondary vocational training programs, the responsibilities of the Methodological Centre for Vocational Education and Training in relation to validating new programs have recently been

transferred to the Centre for Quality Assessment in Higher Education. As a result, applications to offer new programs of study are forwarded to the Centre for Quality Assessment in Higher Education, which evaluates the college's capacity to offer the new program and the need to create it, with particular attention to whether the proposed program is sufficiently different from other existing programs related to the same sector of economic activity. To this end, note that, with a view to rationalizing training offerings, the Ministry of Education and Science authorizes very few colleges to offer the same program of study. Thus, the college must submit to the Centre for Quality Assessment in Higher Education an initial document that presents the objectives of the proposed program of study, the expected number of students and the advantages of the program in comparison with similar programs already offered in Lithuania. The college also submits a document to the Centre for Quality Assessment in Higher Education containing the following information: the title of the program of study, the certification granted, the duration of the program, a list of mandatory and optional courses each with a short description of the subjects and the number of credits, the occupational qualifications of the instructors and a description of the educational materials and services made available to students. The Centre for Quality Assessment in Higher Education makes a recommendation that the Ministry approve or reject the new program. Programs of study approved by the Ministry are added to the *Register of Study and Training Programmes*.

Finally, implementation of post-secondary vocational training programs comes under the jurisdiction of the colleges. Once the new program has been approved, the college is responsible for developing course content and learning activities to achieve the learning outcomes expected by the *Vocational Education and Training Standards*.

2.5.3 Evaluation of programs of study

The Methodological Centre for Vocational Education and Training is responsible for the evaluation of secondary-level vocational training programs while the Centre for Quality Assessment in Higher Education is responsible for the evaluation of programs of study offered by colleges and universities.

Therefore, evaluation of post-secondary vocational training programs comes under the process of evaluating colleges, which is designed to ensure the quality of research and education activities and respect for legally required quality criteria approved by the government of the Republic of Lithuania and the Ministry of Education and Science.

Program evaluation is set up to have all programs evaluated over an eight-year period. It is run by a group of experts designated by the Centre for Quality Assessment in Higher Education. The group is composed of people proposed by post-secondary educational institutions, the Lithuanian Council on Science, the Lithuanian Academy of Sciences and professional associations.

There are two types of program of study evaluations – partial or complete. A partial evaluation is intended to determine whether the program is meeting the requirements of "sequential study program regulation" approved by the Ministry. A partial evaluation takes into account the following elements: the title of the program of study, the certification granted, the duration of the program, the mandatory and optional courses with their related number of credits, the qualifications of the

teaching staff and a description of the educational materials and services available to students. The group of experts bases its opinion solely on the results of an evaluation conducted by the college.

A complete evaluation of a program of study is conducted when a partial evaluation concludes that the program has not respected the quality criteria set for post-secondary education programs. In these cases, the Centre for Quality Assessment in Higher Education organizes a complete evaluation of the program in the year following the submission of the partial evaluation report. The purpose of a complete evaluation is to bring to light the strengths and weaknesses of the program in question, any shortfalls between what the program should be and what it actually is and the associated causes. The evaluation report must also propose avenues for action to improve the situation.

To carry out the complete program of study evaluation, the group of experts visits the college and collects data on the program of study being evaluated, in particular the description and content of the courses under the program and their logical sequence, a description of the instruments for evaluating learning, the number of students registered, the placement rate for graduates and an evaluation of the program by graduates and employers. Following analysis, the group of experts makes recommendations and discusses them with authorities at the college. The report is submitted to the college in question and to the Centre for Quality Assessment in Higher Education. After review by the Centre, it is forwarded to the Ministry. After the college receives the external evaluation report, it must develop an implementation plan for the recommendations formulated by the group of experts and present it to the Centre for Quality Assessment in Higher Education within three months.

2.6 Evaluation of learning

Discussion of the evaluation of student learning in a vocational program offered at the secondary level or at the post-secondary level covers two points: the learning evaluation process and the accreditation of studies.

2.6.1 The learning evaluation process

In Lithuania, the learning evaluation process differs for secondary-level vocational training programs and post-secondary vocational training programs. However, for both secondary-level and post-secondary programs, the Ministry of Education and Science is responsible for defining the general principles and the conditions of the process and for defining the roles of the various partners involved.

The learning evaluation process for secondary-level vocational training programs

The learning evaluation process for secondary-level vocational training programs, in other words the training programs at levels 1 to 4, is defined in the *Law on Vocational and Education Training* of 1997 and in the *Procedure of Initial VET Qualification Exams* of 2003. In accordance with these regulations, the evaluation of learning uses a final exam that must have two parts, one evaluating theoretical knowledge via a written test and the other an evaluation of practical skills through one or a series of standardized tests that call for the execution of tasks in accordance with a specific technique. The regulations also provide that the Chambers of Commerce, Industry and Crafts and

the Lithuanian Chamber of Agriculture are responsible for the final evaluation process. The Chambers are mainly responsible for designating the members of the Qualification Exam Commissions, developing the content of theoretical and practical exams, and keeping a copy of the examination protocol. As for the vocational schools, their responsibility is to designate a person to represent them on each Qualification Exam Commission and to make available information about the students participating in the final exam. Each Qualification Exam Commission is composed of at least three members with equal power, with one person representing employers, one for employees and one member of the teaching staff. The members of the commission are experts specializing in the occupation or training sector in question. The role of the commission is to organize and supervise the learning evaluation activities, measure student mastery of the skills targeted by the program, and assign grades.

The learning evaluation process for post-secondary vocational training programs

The learning evaluation process for post-secondary vocational training programs is defined in the *Regulations of Non-University Studies Results Assessment* of 2002. According to these regulations, the evaluation of learning must involve a final thesis and, for certain programs, a final exam. The colleges are responsible for defining the content of the final thesis and the final exam in accordance with the *Guidelines for the Final Assessment of Non-University Studies' Results*. In addition, the colleges designate the members of the Qualification Exam Commission, which is composed of at least five members, with more than half representing employers. The role of this commission is to organize and supervise the learning evaluation activities, measure student mastery of the skills targeted by the program, and assign grades.

2.6.2 Accreditation of studies

Students who successfully complete a post-secondary vocational training program receive a Higher Education Diploma and professional credentials (Specific Qualification), both granted by the college. To grant professional credentials specified in the document describing the program of study in question and included in the *Register of Study and Training Programmes,* the colleges must have authorization from the Ministry of Education and Science. To this end, the Ministry of Education and Science, taking into account the recommendations of the Lithuanian Council on Science and the Assembly of College Directors, prepares a list of professional credentials granted to individuals who complete college studies in accordance with the stipulations of the approved field of studies. The list of professional credentials must be approved by the government. In addition, the Ministry of Education and Science determines the form of the document awarding accreditation and the conditions of granting it.

3 The sharing of responsibilities among authorities in Massachusetts for programs leading to a trade or an occupation within the education system

This chapter of the literature review report discusses the sharing of responsibilities among authorities in Massachusetts involved in programs leading to a trade or an occupation within the education system. It covers the following six major themes:

- overview of the education system in Massachusetts
- reforms to the post-secondary education system in Massachusetts
- structure of post-secondary education in Massachusetts
- secondary-level and post-secondary vocational training in Massachusetts
- management of post-secondary vocational programs of study
- evaluation of learning

3.1 Overview of the education system in Massachusetts

Before going into detail about the sharing of responsibilities among authorities in Massachusetts involved in programs leading to a trade or an occupation within the education system, it is important to briefly depict the principal characteristics of the education system of this American state.[33] It is also important to briefly describe Massachusetts itself. The sections that follow present the organizations with education-related responsibilities and the levels of education within the principal training paths of the Massachusetts education system.

3.1.1 Brief description of Massachusetts

Massachusetts, officially named the *Commonwealth of Massachusetts*, is located in the northeastern United States, in the heart of New England. It is bordered to the west by New York State, to the east by the Atlantic Ocean, to the north by Vermont and New Hampshire and to the south by Connecticut and Rhode Island. Martha's Vineyard and Nantucket islands are found off the southeast coast of Massachusetts. With a surface area of 20,300 km^2, this state is one of the smallest in area in the United States, ranking 44th. In terms of population, it is the 13th most populous state with nearly 6.3 million residents.

In the early 1990s, Massachusetts experienced significant economic changes as it moved from a traditional economy to one based on knowledge, skill and technological innovation. New sectors of economic activity such as biotechnology, biomedicine, organic chemistry, information technologies, financial services and tourism expanded. Among other things, the opening of markets achieved through multilateral agreements such as the North American Free Trade Agreement (NAFTA)

33. Some of the data discussed in this chapter were brought to light by a study conducted by Éduconseil inc. on behalf of the Fédération des cégeps. The citation is as follows: FÉDÉRATION DES CÉGEPS, *Recherche sur les modèles d'enseignement supérieur. Résultat d'une analyse documentaire*, Québec, Fédération des cégeps, 2004, 291 p.

fostered the growth of the state's economy. Massachusetts has taken advantage of its port in Boston to increase its exports, in particular those to Canada. Massachusetts is unquestionably a prosperous state with one of the highest standards of living in the United States.[34]

3.1.2 Agencies responsible for education

In the United States, education is primarily a state responsibility. However, a federal agency, the U.S. Department of Education, is mandated to provide financial assistance to each state to ensure the entire population has access to education, particularly people with functional limitations, low incomes and immigrant backgrounds. It also points out education problems, formulates recommendations, promotes excellence in education through scholarships, collects data on the education system and makes the data available to the public and educators.

When the U.S. Department of Education was created in 1979, it was determined that it would not have the right to legislate in the following fields considered under state jurisdiction:

- the content of programs of study, whether at the elementary, secondary, post-secondary or university level[35]
- the administration and financing of education
- the creation of new post-secondary educational institutions and universities
- admission criteria for post-secondary educational institutions and universities
- accreditation of studies

In Massachusetts, the Massachusetts Department of Education is responsible for elementary and secondary-level education while the Massachusetts Board of Higher Education is responsible for post-secondary and university education (see Figure 3.1). The principal responsibilities of the Massachusetts Board of Higher Education relate to the following:

- allocating the necessary funds to each post-secondary institution and university[36]
- establishing rules as to the rights to education
- establishing rules as to the content of programs of study
- establishing rules as to the admission criteria students face in entering post-secondary institutions and universities
- requiring each institution to file an annual financial report

34. For more information, refer to the *Citizen Information Service* section of the Web site of the Commonwealth of Massachusetts <www.mass.gov/portal>.

35. As noted in the conceptual framework described in section 1.3 of this report, for the purposes of this literature review, "post-secondary studies" refers to programs of study offered in community colleges and state colleges and "university studies" refers to those offered in universities.

36. As an indicator, note that, according to the budget proposed by the Governor of Massachusetts for 2005, $3.2 billion will be allocated to post-secondary and university education, representing 10% of the state's total expenditures. Of this amount, $2 billion will go to the five campuses of the University of Massachusetts, $557.1 million to community colleges, $490.5 million to state colleges and $111.6 million to the Massachusetts Board of Higher Education. Again as an indicator, note that financing from the state of Massachusetts represents about 50% of the total revenue of the community colleges.

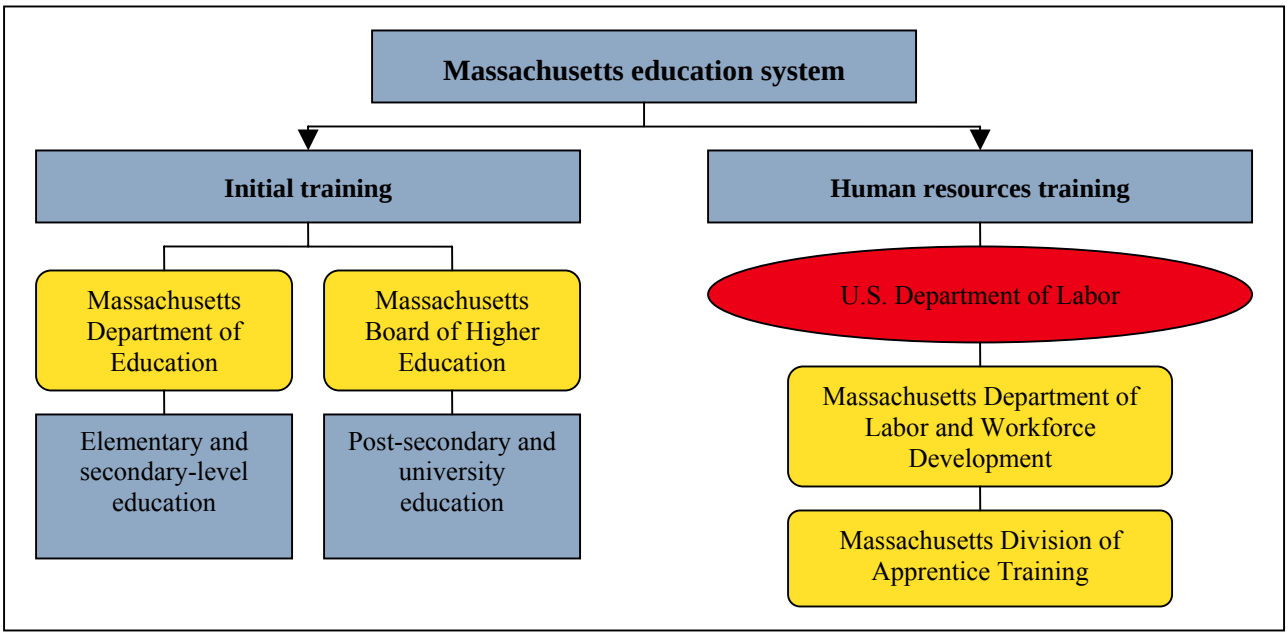
- developing five-year strategic plans to determine the objectives to be achieved for each of the next five years to ensure the post-secondary and university education system meets the state's needs
- evaluating and approving proposals from the educational institutions concerning new programs of study
- evaluating and approving projects to create new campuses
- evaluating and, if necessary, abolishing programs of study that produce few graduates
- evaluating the performance of each educational institution and requiring the development of a performance improvement plan for institutions that have not sufficiently distinguished themselves[37]

The Massachusetts Board of Higher Education is composed of eleven members appointed by the state governor for a five-year period. This government agency has a chair, a vice-chair, and a member each representing community colleges, state colleges, the University of Massachusetts, unions, business, students and three other fields. The members of this agency meet at least six times a year. In addition, two student representatives are designated observers without the right to vote. Votes from six members are required to enact a decision by the Massachusetts Board of Higher Education.

In the United States, then, vocational training offered at the secondary level and at the post-secondary level is a state concern. However, human resources training and continuing vocational training come under federal jurisdiction, under the authority of the U.S. Department of Labor (see Figure 3.1). Thus, in Massachusetts, pre-apprenticeship and apprenticeship programs are administered by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development, an offshoot of the U.S. Department of Labor, which approves apprenticeship programs subject to federal standards.

37. Web site of the Massachusetts Board of Higher Education <www.bhe.mass.edu>.

Figure 3.1 Agencies responsible for education in Massachusetts



3.1.3 Levels of education

Elementary education, from kindergarten to grade four, is provided in elementary schools. Secondary-level education covers two cycles: middle or junior high school, offering classes from grades five to eight, and high school, with classes from grades nine to twelve. Note that secondary-level educational institutions grant Secondary Studies Diplomas upon graduation.

Streaming

In the high school portion of secondary-level education, students have a choice between the general training stream and three streams that prepare them for entry into the workforce and continued post-secondary studies (see Figure 3.2). The first of these three streams combines vocational training programs from grades 9 to 12. These programs are offered by vocational technical schools. They focus on entry into the workforce and lead to the Certificate of Occupational Proficiency in addition to the Secondary Studies Diploma.

The second stream is the *Tech Prep* program of study, which enables students in grades eleven and twelve to gain familiarity with a specific technical sector and make a harmonious transition to a community college to study in the same field. This program of study leads to the Secondary Studies Diploma and not a specific diploma.

The third stream is the pre-apprenticeship program, which enables students at the secondary level to begin apprenticing in an occupation on a part-time basis without affecting the normal secondary-level path. This program, intended for students in grades eleven and twelve, leads to the Certificate of Completion of Pre-Apprenticeship in addition to the Secondary Studies Diploma. The apprenticeship can then be continued after the secondary studies through the apprenticeship program.

Thus, regardless of the streaming at the secondary level, the student will receive a Secondary Studies Diploma upon graduation. Students then have access to all post-secondary training paths, although the educational institutions may have prerequisites.

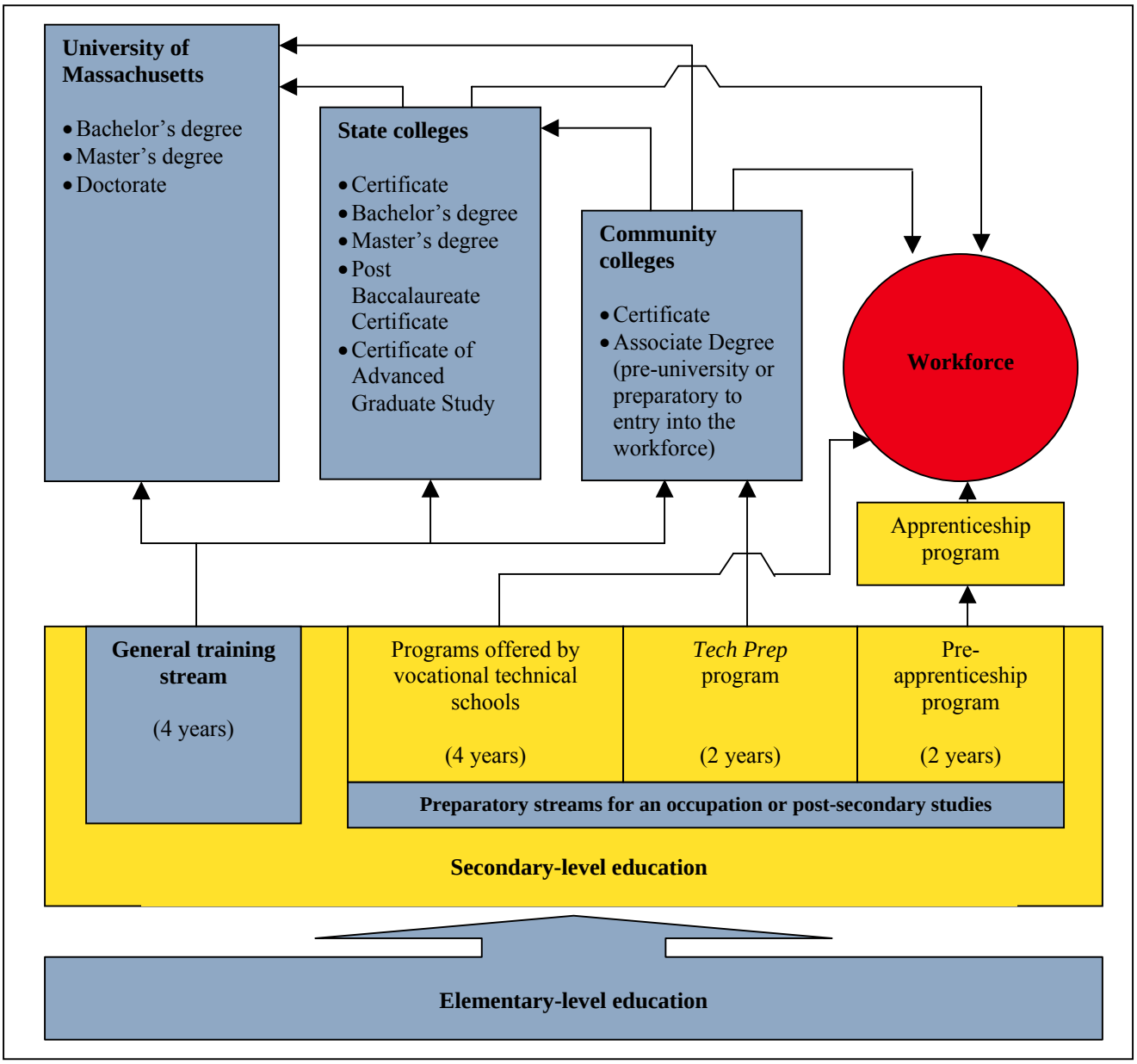
Public post-secondary institutions and universities

Students who wish to pursue post-secondary or university studies can choose from three types of public educational institutions, i.e. community colleges, state colleges and the University of Massachusetts, which has five campuses and is the only public university in Massachusetts.[38] The community colleges grant the associate degree and the certificate for post-secondary vocational training. The state colleges grant the bachelor's degree, master's degree and the certificate, while the University of Massachusetts awards the bachelor's degree, master's degree and doctorate.

Finally, students who wish to pursue post-secondary studies can also take an apprenticeship program lasting two to six years. This program leads to the Certificate of Completion of Apprenticeship.

38. As an indicator, note that Massachusetts has 121 public and private post-secondary educational institutions and universities. Note also that 63% of those who study at the post-secondary or university level do so within Massachusetts' network of public institutions, i.e. community colleges, state colleges or the University of Massachusetts. Stephen P. Tocco and Judith I. Gill, *Twelve-Year History of the Massachusetts Board of Higher Education* (Boston: Massachusetts Board of Higher Education, 2002) p. 7.

Figure 3.2 Principal training paths of the education system in Massachusetts



Source: Fédération des cégeps, *Recherche sur les modèles d'enseignement supérieur. Résultat d'une analyse documentaire*(Québec: Fédération des cégeps, 2004), p. 241 (free translation.)

3.2 Reforms to the post-secondary education system in Massachusetts

Discussion of reforms to the post-secondary education system in Massachusetts covers three aspects: the context of the reforms, the objectives of the reforms and the principal effects of the reforms.

3.2.1 Context of reforms

The context of the reforms to the Massachusetts education system is characterized mainly by changes to the state's economy. In the early 1990s, Massachusetts, which was still feeling the after-effects of the 1980s recession, began the transition from a traditional production economy to a so-called "knowledge" economy based on knowledge, skills and technological innovations. Fostered by significant transformations in production techniques, this transition contributed to increasing demand for better trained labour increasingly skilled in professional terms.

The context of the reforms is also characterized by the limited availability of state resources. In effect, the adoption of restrictive management policies considerably limited the public funds allocated to the post-secondary education system and, as a result, restricted efforts to efficiently plan and manage the education system.

As a corollary to these rapid economic changes and the adoption of restrictive management of state resources, the public network of post-secondary educational institutions in Massachusetts was characterized by the following:[39]

- decentralized management of the post-secondary education system, particularly with regard to program of study development and implementation of
- a mismatch between the post-secondary programs of study offered and new needs in the workplace for skilled labour
- reduced registrations in all post-secondary programs of study
- increased drop-out rates before obtaining a diploma
- increased tuition and fees, which worked against those with low incomes in terms of access to post-secondary studies
- insufficient financial assistance in relation to the increase in tuition costs

Given the situation, Massachusetts undertook reforms to its post-secondary education system. The objectives of the reforms are discussed in the following paragraphs.

3.2.2 Objectives of the reforms

Reforms to Massachusetts' post-secondary education system began in 1991 with the forming of a commission mandated to conduct a broad study of the sharing of responsibilities for post-secondary education by government authorities, community colleges and state colleges. The commission collected data on various subjects such as the mission of the colleges, their financing, the training offered and the process of developing new programs of study. The intention was to formulate recommendations aimed at comprehensive improvements to the public post-secondary education system to make it more relevant for society's new requirements—in particular for the needs of the labour market—and to ensure efficient management of resources.

39. Stephen P. TOCCO and Judith I. GILL, *op. cit.*, 11 p.

The information the commission collected led it to make the following recommendations, which became the objectives of the reforms:[40]

- modifying the structure of the public post-secondary education system, in particular by creating a central body responsible for orienting and supporting the development of the education system
- promoting access to post-secondary education, specifically by reducing tuition and fees and increasing the financial assistance available to students
- increasing state funding for post-secondary education
- ensuring public funds are used efficiently
- increasing the quality of the training offered, particularly by ensuring post-secondary programs of study are consistent with labour market needs for skilled labour
- increasing continuing training offerings in the colleges;
- encouraging colleges to increase their private funding sources
- upgrading the equipment and buildings used for post-secondary education

3.2.3 Principal effects of reforming the post-secondary education system

In accordance with one of the many recommendations made by the commission, the Massachusetts Board of Higher Education was created in 1991, facilitating the implementation of the reforms and thus the introduction of changes to the post-secondary education system. In effect, most of the changes to the Massachusetts post-secondary education system took the form of policies or programs instituted by the Massachusetts Board of Higher Education. The means used to achieve each of the objectives of the reforms, i.e. the principal effects of the reforms over the 1990 to 2002 period, are discussed below.

Modifying the structure of the public post-secondary and university education system

- create a central body—the Massachusetts Board of Higher Education—responsible for orienting and supporting the development of the education system
- combine the five campuses of the University of Massachusetts under a single entity managed by a single board of trustees
- grant greater independence to the boards of trustees of each of the state colleges and community colleges

Promoting access to post-secondary and university education

- reduce tuition and fees
- set a maximum limit on the tuition students face so that it does not exceed 25% of the total cost of education in the community colleges or 33% in the state colleges and the University of Massachusetts
- implement various programs to foster access to post-secondary studies, in particular the *State and Community College Access Grant Program*, which enables students from low-income families to register at little or no cost at state colleges and community colleges, and the *UPLAN*, which consists of an educational savings plan directing savings toward the growing costs of post-secondary studies

40. *Ibid*.

- increase distance training, i.e. correspondence courses and on-line learning via the Internet through *UMass Online* and the *Massachusetts Public College eLearning Network*

Increasing state funding for post-secondary and university education and ensuring public funds are used efficiently

- closely define the mission of each of the three branches of the public post-secondary education network, i.e. community colleges, state colleges and the five campuses of the University of Massachusetts
- develop a performance evaluation system for post-secondary educational institutions, known as the *Performance Accountability System*, which is intended to promote better administration of the network and more efficient management of public funds[41]
- require each educational institution to submit a financial report annually

Increasing the quality of post-secondary and university training

- set higher criteria for the conditions of admission to community colleges, state colleges and the University of Massachusetts
- evaluate the relevance of programs of study based on the average number of graduates and abolish programs that do not achieve the established threshold for granting diplomas
- promote cooperation among secondary and post-secondary education authorities to establish bridges fostering continuity of training paths
- promote the development of partnerships between community colleges, state colleges and players in the labour market to develop programs of study that meet the needs of the labour market
- upgrade the training of future teachers
- establish higher criteria for hiring teaching staff
- enable the teaching staff of the public post-secondary education network to participate in professional upgrading activities

Increasing continuing training offerings in the colleges

- design human resources training as an essential condition of the social and economic development of Massachusetts
- promote the development of partnerships between community colleges, state colleges and players in the labour market to establish professional upgrading activities for those already employed

Encouraging colleges to increase their private funding sources

- implement a program—the *Endowment Incentive Program*—that enables post-secondary educational institutions to receive a dollar from the state for every two dollars they receive from private sources.

Upgrading the equipment and buildings used for post-secondary education

- allocate $300 million in public funds to the community colleges and the state colleges for renovations to facilities, equipment maintenance and the construction of new buildings such as libraries and laboratories on the leading edge of technology.

41. A more detailed description of the performance evaluation system for post-secondary educational institutions is provided in section 3.5.3 of this chapter.

3.3 Structure of post-secondary education in Massachusetts

Discussion of the structure of post-secondary education in Massachusetts consists of presenting the colleges' mission and the characteristics of how they are legally organized.

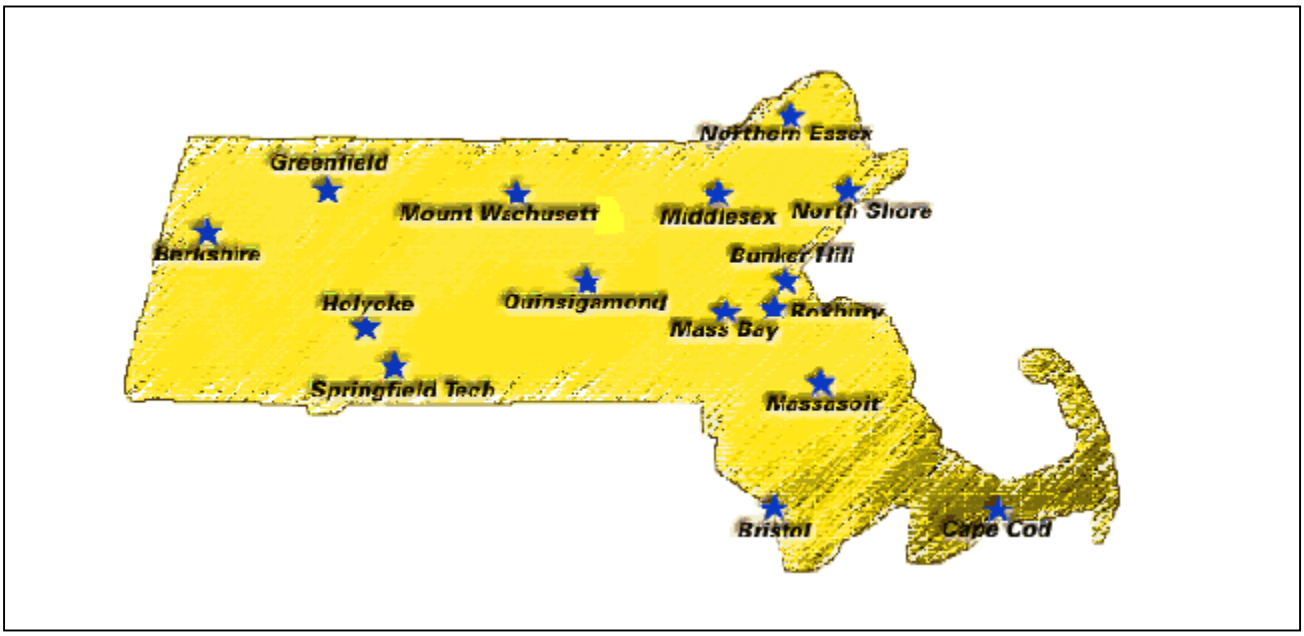
3.3.1 Mission of colleges

From the outset, note that the Massachusetts network of public colleges comprises fifteen community colleges and nine state colleges, including three specializing in the arts, liberal arts and marine studies (see Figure 3.3). The colleges offer post-secondary programs of study they develop themselves. This is why almost half of the post-secondary programs are offered in only a single college.

The mission of the community colleges is to promote access to post-secondary studies for all eligible secondary students through tuitions that are lower than at private colleges and by offering training that is better targeted regionally. They offer the first and second year programs of study of the bachelor's degree, vocational training programs, adult permanent education programs and continuing training.

For their part, the state colleges have a mission of offering programs of study leading to a bachelor's degree or a master's degree. Tuition and the admission criteria are higher than in the community colleges.

Figure 3.3 Distribution of community colleges in Massachusetts



Source: Website of the Massachusetts Community Colleges <www.masscc.org>.

3.3.2 Legal organization of colleges

Discussion of the legal organization of Massachusetts' colleges deals with their legislative framework and their legal status. It also covers the management bodies that participate in administering them.

Legislative framework

The community colleges and the state colleges are governed by the *Massachusetts General Laws*, Article 12 of which is entitled *Administration of the Government* and concerns education. They are also governed by the policies of the Massachusetts Board of Higher Education.

Legal status of colleges

In Massachusetts, as elsewhere in the United States, public and private post-secondary educational institutions are corporations. This means they can govern themselves with great independence in terms of the internal functioning of the programs of study offered. The institutions have the right to manage their material resources independently and collect funds from private sources. They can compete for subsidies and to recruit students. This is what the U.S. Department of Education calls the *educational marketplace*.

Elementary, secondary and post-secondary educational institutions are accredited by non-governmental organizations recognized by the federal government. Accreditation by one of these organizations is optional since it only means the educational institution in question has the resources

necessary to carry out its education mission and has demonstrated integrity in its operations. This accreditation attests to the financial reliability of the institution rather than the quality of the programs of study it offers. The New England Association of Schools and Colleges is responsible for accrediting public and private institutions at the elementary, secondary and post-secondary levels in six American states, i.e. Massachusetts, Connecticut, Maine, New Hampshire, Vermont and Rhode Island. Accreditation so granted is valid for a maximum period of ten years.

Management bodies

In Massachusetts, each community college and state college is managed by a board of trustees which is responsible for administering the business of the college, determining the programs and courses offered by the college and setting tuition. More specifically, the board's principal responsibilities are:

- developing new programs of study or modifying existing ones and submitting them for approval to the Massachusetts Board of Higher Education
- granting certification of studies
- setting tuition and fees[42] in accordance with the requirements of the Massachusetts Board of Higher Education
- determining the criteria for admitting students in accordance with the requirements of the Massachusetts Board of Higher Education
- determining how to use the available financial resources and managing the college's affairs
- soliciting private sources of funding and seeking grants from the federal government
- submitting an annual financial report to the Massachusetts Board of Higher Education
- submitting a performance evaluation report to the Massachusetts Board of Higher Education

Board members are appointed by the Governor of Massachusetts. Their role is similar to that of corporate board members. As a result, they are selected for their business sense rather than their education skills. The board also includes one member to represent the student population.

The board is advised by an advisory committee. Although the committee's composition varies from college to college, it is generally composed of people who are experts in specific fields, in particular education, financial management, human resources management and management of material resources.

In addition, several colleges have a committee known as the Academic Senate. It is composed of members elected from the college's teaching staff and a member of the student population. The Academic Senate makes recommendations to the board of trustees concerning the training offered by the college.

42. As an indicator, note that tuition for the 2003-2004 school year averaged $3,300 in community colleges and $4,600 in state colleges.

3.4 Secondary-level and post-secondary vocational training in Massachusetts

Discussion of secondary-level and post-secondary vocational training in Massachusetts is oriented around four subjects: the principal characteristics of programs of study, the pedagogical organization of training, admission to post-secondary educational institutions and continuity of training paths.

3.4.1 Principal characteristics of programs of study

In Massachusetts, vocational training programs are offered at the secondary and post-secondary levels. Secondary-level vocational training programs are provided in vocational technical schools, while colleges that offer post-secondary vocational training programs also offer university programs of study. Apprenticeship programs are offered by both vocational technical schools and community colleges. The principal characteristics of programs of study are discussed based on the following elements:

- secondary-level vocational training
- post-secondary vocational training
- university training at the post-secondary level leading to a university degree
- apprenticeship program (Registered Apprenticeship Program)

Secondary-level vocational training

Secondary-level vocational training relates to programs of study offered in vocational technical schools or through the *Tech Prep* and pre-apprenticeship programs.

Study programs offered in vocational technical schools

Vocational technical schools are educational institutions specializing in vocational training. They accept students who have completed grade eight and wish to acquire occupational skills during grades nine to twelve. Just like ordinary secondary educational institutions, vocational technical schools are under the jurisdiction of the Massachusetts Department of Education and are managed by the administrative committee of a school district.

In Massachusetts, some 70 different programs of study are available at vocational technical schools. Each institution develops them for approval by the Massachusetts Department of Education. As a result, their content varies from one institution to another. However, the programs of study must respect certain requirements set by the Massachusetts Department of Education in conjunction with business. Among these requirements, we would note the following:

- 40 to 50% of the total duration of the program must be devoted to practical aspects of the occupation so that about two years are devoted to apprenticing in the occupation and two more years are devoted to ordinary secondary-level general training
- a program concerning an occupation regulated by a national organization must be approved by the organization to enable the student to eventually obtain the certification necessary to perform the occupation

Finally, students who complete a program of study at a vocational technical school and achieve the general training objectives as well as those of the vocational training will receive two diplomas, the Secondary Studies Diploma granted by the vocational technical school and the Certificate of Occupational Proficiency granted by the Massachusetts Department of Education. To receive the second diploma, the student must have completed the Secondary Studies Diploma. After receiving these diplomas, the student can enter the workforce.

The Tech Prep *program*

A short form of *Technical Preparation*, the *Tech Prep* program enables secondary students who wish to continue their studies at a community college to adapt the last two years of their secondary studies to a specific technical sector. Thus, in grades eleven and twelve, the student takes courses and participates in activities outside of class. The purpose of this is to familiarize the student with the technical sector in question while continuing to take the ordinary courses of general secondary-level training. At the end of grade twelve, the student receives the Secondary Studies Diploma. Certain courses under the *Tech Prep* program can also be recognized. In addition, priority admission to a program of study leading to an associate degree or a certificate from a community college can be granted. The *Tech Prep* program thus enables the student to obtain the Secondary Studies Diploma and an associate degree or certificate via a coordinated series of courses that somewhat shorten the time needed to earn these two diplomas.

Each *Tech Prep* bridge is the result of an agreement between a secondary educational institution and a community college.[43] The *Tech Prep* bridges vary from institution to institution.

The *Tech Prep* program is partly funded by the federal government through the *Carl D. Perkins Vocational and Technical Education Act of 1998*. This makes it possible to designate someone in each secondary educational institution to be responsible for the *Tech Prep* program. This individual recruits students into the program, provides counseling, follows student progress in the program and carries out the administrative management of the program.

The pre-apprenticeship program

In Massachusetts, about fifteen occupations—mainly in the construction industry—can come under the pre-apprenticeship program. It enables students to begin apprenticing in an occupation during grades eleven and twelve of their secondary studies and then continue in the apprenticeship program. The student works for pay for a business while apprenticing in an occupation. This pre-apprenticeship program does not disturb ordinary secondary studies since the student, while working part-time during the school year, takes all the courses required for the Secondary Studies Diploma. In addition, the student must take about 150 hours per year of in-class training in optional courses related to the occupation. At the end of secondary studies, the student receives the Secondary Studies Diploma and the Certificate of Completion of Pre-Apprenticeship granted by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development. If the student registers for the apprenticeship program, the hours of apprenticeship performed in the workplace through the pre-apprenticeship program will be recognized.

43. During the 2003-2004 school year, about 200 secondary-level educational institutions in Massachusetts offered the *Tech Prep* program and more than 12,000 grade eleven and twelve students were registered in it.

Finally, it is important to note that the pre-apprenticeship program is administered and funded by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development. It is given official force through a *Pre-Apprentice Agreement* signed by the employer, the student, a parent, the secondary educational institution and a representative of the Division of Apprentice Training. Employers are responsible for selecting students, a process akin to the hiring process in all ways.

Post-secondary vocational training

Post-secondary vocational training covers programs of study that lead to a certificate or an associate degree.[44] This is discussed in the following paragraphs.

Programs of study leading to a certificate

The duration of programs of study leading to a certificate is highly variable. However, most of them typically take less than two years. This is because these programs are made up only of the core courses for a field of studies, representing 15 to 60 credits, with no general training element.

Some of the programs of study leading to a certificate are intended for high school graduates who do not have a college diploma and wish to enter the workforce. Community colleges and state colleges offer this type of program. Other programs of study leading to a certificate are intended for those who have a bachelor's degree or a master's degree and wish to acquire a specialty such as teaching, for example. These certificate programs of study are taken after receiving the bachelor's degree and lead to the Post Baccalaureate Certificate. Similarly, those taken after the master's degree lead to the Certificate of Advanced Graduate Study. Only state colleges offer this type of program of study.

Programs of study leading to an associate degree

Programs of study leading to an associate degree fall into two categories: programs of study that lead to an Associate in Applied Science Degree and those that lead to an Associate in Science Degree. Those in the first category take two years and comprise 60 or more credits, at least 16 relating to general training.[45] They prepare students for work as a technician. Those in the second category also take two years and cover 60 or more credits, with at least 20 credits of general training. They prepare students for work as a technician or for continued study in a program leading to a bachelor's degree in the same field.

University training at the post-secondary level and leading to a university degree

University training at the post-secondary level that leads to a university degree relates to programs of study resulting in an Associate in Arts in General Studies Degree or an Associate in Arts Degree. This also relates to programs leading to a bachelor's degree.

44. Generally speaking, each of the 15 community colleges in Massachusetts offers 10 to 25 programs of study that lead to a Certificate and 25 to 50 programs of study that lead to an Associate Degree, i.e. an Associate in Applied Science Degree, Associate in Science Degree, Associate in Arts in General Studies Degree or Associate in Arts Degree. Note that about half of the post-secondary programs are offered in only a single educational institution.

45. For all post-secondary programs of study, general training consists of mandatory or optional courses in the humanities (languages and literature, philosophy and history, for example), arts, natural sciences, mathematics and social sciences.

Study programs leading to an Associate in Arts in General Studies Degree or an Associate in Arts Degree

Massachusetts' community colleges offer programs of study that constitute the first part of undergraduate university studies lasting four years. When agreements between the post-secondary educational institutions allow, most credits of a program of study leading to an Associate in Arts in General Studies Degree or an Associate in Arts Degree can be transferred to a program of study leading to a bachelor's degree. Over four years, then, the student can obtain two diplomas, while a program of study leading to a bachelor's degree normally takes four years. Although the community colleges have reached agreements with the state colleges and the University of Massachusetts, the specific terms of each agreement depend on the institution involved.

Two-year programs of study leading to an Associate in Arts in General Studies Degree require at least 60 credits, with a minimum 33 credits of general training. These programs of study do not focus on gaining knowledge in any specific technical field. Rather they combine the general training and optional courses in various technical fields, which enables students to explore various fields of interest. Moreover, these programs of study are intended for continuing studies in a program leading to a bachelor's degree in the student's chosen field.

Two-year programs of study leading to an Associate in Arts Degree require at least 60 credits, with a minimum 33 credits of general training. Unlike programs of study leading to an Associate in Arts in General Studies Degree, those leading to an Associate in Arts Degree focus on continuing studies in a program leading to a bachelor's degree in a specific field—the Associate in Arts in Business Administration or the Associate in Arts in Fine Arts: Visual Arts, for example.

Study programs leading to a bachelor's degree

In Québec, programs of study leading to a bachelor's degree are clearly associated with university studies. In the United States, these programs of study are associated with undergraduate degrees, while programs of study leading to a master's degree or a doctorate are associated with graduate degrees. However, a distinction must be made regarding Massachusetts. In effect, state colleges are the only post-secondary educational institutions that offer the bachelor's degree and the master's degree, and the community colleges are the only ones to offer the associate degree.

The four-year programs of study that lead to a bachelor's degree cover at least 120 credits, with a minimum 36 credits of general training. State colleges also offer programs of study leading to a master's degree and programs of study leading to a Post Baccalaureate Certificate or Certificate of Advanced Graduate Study.

Apprenticeship program (Registered Apprenticeship Program)

As in 30 other American states, Massachusetts' apprenticeship programs come under the federal apprenticeship program known as the *National Registered Apprenticeship System,* which is managed by the Office of Apprenticeship Training, Employer and Labor Services, an agency of the U.S. Department of Labor. To date, this federal agency has approved more than 32,000 apprenticeship programs across the United States, involving some 488,900 apprentices. In each state, there is an

organization responsible for approving apprenticeship programs under federal standards.[46] In Massachusetts, this is the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development.

Apprenticeship programs are intended for people age 16 and over. To register in these programs, individuals must be hired by an employer who wishes to participate in human resources training.[47] The employer must then register the employee as an apprentice with the Division of Apprentice Training and sign an agreement ensuring that the apprenticeship will comply with federal standards on the content and duration of training.

The apprentices work full-time for a company and study part-time at a vocational technical school or community college. Apprenticeship programs enable students to learn a specialized occupation through an on-the-job apprenticeship and theoretical training at an educational institution.[48] These training programs take up to six years but most take four. For each year of apprenticeship, students receive at least 144 hours of theoretical training in addition to the on-the-job training. Each year, the employer conducts at least two evaluations under real working conditions. At the end of the program, students receive the Certificate of Completion of Apprenticeship granted by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development.

3.4.2 Pedagogical organization of training

The pedagogical organization of training is the responsibility of each post-secondary and university educational institution in Massachusetts. Thus, community colleges, state colleges and the University of Massachusetts can independently establish their own academic calendar. Consequently, how education is organized depends on the institution, particularly with regard to evening courses, summer courses, remedial courses and correspondence courses. However, it is possible to draw a profile of the situation in most educational institutions.

Typically, the school year is divided into two semesters of fifteen weeks each. The autumn semester runs from September to the end of December and the spring semester runs from late January to the end of May. Certain educational institutions also offer two sessions of summer courses lasting seven weeks each. They run from the end of May to mid-July and from mid-July to the beginning of September. A few educational institutions, in particular the University of Massachusetts, also offer what they call the January intersession or winter session, which enables students to take one or more courses during the first three weeks of January.

46. For an occupation to fit into apprenticeship standards, the federal government must have recognized it as a regulated occupation. Each year, new occupations are recognized by the federal government. In 2004, there were apprenticeship standards for about 1,000 occupations.
47. To this end, note that there are no fiscal measures to encourage employers to participate in apprenticeship programs.
48. In Massachusetts, some fifteen occupations, mainly in the construction industry, have related apprenticeship programs.

3.4.3 Admission to post-secondary educational institutions

Admission to post-secondary and university educational institutions in Massachusetts is discussed in terms of registration at institutions themselves and the conditions of admission.

Registration at post-secondary educational institutions

Each of Massachusetts' public post-secondary and university institutions independently establishes rules for registering in the programs it offers. In general, students who wish to register at a community college, state college or the University of Massachusetts directly apply to the registrar of the institution in question before the start of the semester. An application form is provided along with useful information concerning the conditions of admission, tuition, the calendar and the documents required (such as a copy of the Secondary Studies Diploma and a transcript of marks).

Conditions of admission to post-secondary educational institutions

The general conditions of admission to the fifteen community colleges, nine state colleges and the University of Massachusetts, which constitute the system of public post-secondary and university institutions, are determined by the Massachusetts Board of Higher Education. The board of trustees of each educational institution sets its own admission criteria in accordance with the requirements of the Massachusetts Board of Higher Education.

Thus, admission criteria for the community colleges relate essentially to the Secondary Studies Diploma or an equivalent (General Equivalency Diploma). Note that individuals who do not have the General Equivalency Diploma can earn it at the college before undertaking post-secondary studies. However, certain programs of study may have prerequisites. If an individual has not successfully completed these courses at the secondary level, he or she can be admitted to the community college to take equivalent courses before entering the planned program of study.

The admission criteria to the state colleges and the University of Massachusetts are more numerous and more restrictive. In effect, to be admitted to these institutions, individuals must have successfully completed secondary studies with a cumulative average of at least 3.0 points,[49] in addition to completing four English courses, three mathematics courses, three physical sciences courses, two social sciences courses, two language courses other than English and two courses in the computer sciences or the arts. Note, however, that these are the minimum criteria for admission and the state colleges and the University of Massachusetts may add others.

3.4.4 Continuity of training paths

Discussion of the continuity of training paths seeks to bring to light the bridges between secondary-level, post-secondary and university programs of study in Massachusetts. The *Joint Admissions Program*, an official policy of the Massachusetts Board of Higher Education concerning the harmonization of programs of study, is also discussed.

49. A cumulative average of 4.0 points is equivalent to an A while 3.0 points is equivalent to a B, 2.0 points is equivalent to a C and 1.0 points is equivalent to a D.

However, before proceeding, it is important to note that the continuity of training paths is defined during program development. In effect, the Massachusetts Board of Higher Education uses this criterion to evaluate the relevance of new programs of study proposed by educational institutions before it approves them.[50] It is also important to note that continuity is considered a performance indicator under the *Performance Accountability System* used to measure institutional performance.[51]

Bridges between programs of study

An overview of the bridges fostering continuity of training paths has been provided in earlier sections of this chapter, specifically in the sections entitled *Overview of the education system in Massachusetts* and *Secondary-level and post-secondary vocational training in Massachusetts*. However, it is worth describing in greater detail the conditions facilitating coordinated educational paths between programs of study.

First, the *Tech Prep* program enables students to adapt the last two years of their secondary studies in a specific technical field with a view to continuing post-secondary studies in the same field. Thus, the *Tech Prep* bridges resulting from agreements between secondary educational institutions and community colleges grant the student priority admission to a program of study leading to an associate degree or a certificate, and certain courses taken through the *Tech Prep* program are recognized. This means the *Tech Prep* program results in a Secondary Studies Diploma and an associate degree or certificate via a sequence of coordinated courses, thus shortening the time needed to earn the two diplomas.

Similarly, the pre-apprenticeship program enables students to apprentice in an occupation during the last two years of secondary studies and continue their apprenticeship in a post-secondary apprenticeship program. Harmonization of these two programs results in having the hours of on-the-job training during the pre-apprenticeship program recognized. The student also earns the Certificate of Completion of Apprenticeship more quickly.

Finally, certain post-secondary programs of study leading to an associate degree—in particular programs leading to an Associate in Science Degree, Associate in Arts in General Studies Degree or Associate in Arts Degree—can be considered the first part of undergraduate university studies. In other words, students who register in a program of study leading to an associate degree can benefit from a bridge to a program leading to a bachelor's degree and thus have the credits acquired in a post-secondary program of study recognized for a university-level program of study. This results in two diplomas over a four-year period.

The Joint Admissions Program

A policy of the Massachusetts Board of Higher Education known as the *Joint Admissions Program* enables individuals registered in a program of study leading to an associate degree at a community college to have a guaranteed place at a state college or the University of Massachusetts in addition to having the credits acquired through the post-secondary program of study recognized in a program of

50. The process of program development is discussed in section 3.5.2 of this chapter.
51. The performance assessment system for post-secondary educational institutions, known as the *Performance Accountability System*, is described in section 3.5.3 of this chapter.

study leading to an bachelor's degree. To be eligible, the individual must have a cumulative average of at least 2.5 points upon receiving the associate degree.

3.5 Management of post-secondary vocational programs of study

Management of vocational programs of study involves the process of developing, approving and evaluating programs available in post-secondary educational institutions. These management activities are based on a occupational qualifications model that includes a occupational activity reference system, a training reference system and an evaluation reference system.

3.5.1 The occupational qualifications model in Massachusetts

The notion of an occupational qualifications model refers to the set of functional links between needs for initial and continuing human resources training and the means implemented within a given state to fill these needs. The three principal components of a occupational qualifications model are the occupational activity reference system, the training reference system and the evaluation reference system.

The occupational activity reference system constitutes the reference concerning the performance of an occupation or a group of occupations. In effect, it establishes the skills required to perform an occupation and the criteria associated with performing the functions, tasks and activities of the occupation. In addition, this reference system is used to develop the training and evaluation reference systems for both initial and continuing training offered in the workplace or by the education system.

In Massachusetts, the occupational qualifications model is characterized by the use of two occupational activity reference systems, one concerning training offerings within the education system and one for training offerings in the workplace. In other words, the occupational qualifications model in Massachusetts has two components that use their own occupational activity reference system: initial training, on the one hand, and human resources training on the other (see Figure 3.4).

The occupational activity reference system used within the education system

The occupational activity reference system used within the education system is defined by the post-secondary educational institutions. In fact, in Massachusetts, definition of the occupational activity reference system is closely linked to definition of the training reference system since program of study development[52] arising from determining labour market needs for training in a given sector of economic activity or an occupation is the colleges' responsibility.

Thus the college boards collect a set of data on labour market needs for a given sector of economic activity or an occupation and then determine what exactly is involved in performing the occupation. They then consult partners in socio-economic circles, particularly in affected businesses, to ensure

52. The process of developing post-secondary programs of study is discussed in section 3.4.2 of this chapter.

the occupational activity reference system under development truly corresponds to the occupation in question.

The college boards then design the training reference system, i.e. the program. They then refine the evaluation reference system in accordance with the requirements of the Massachusetts Board of Higher Education.

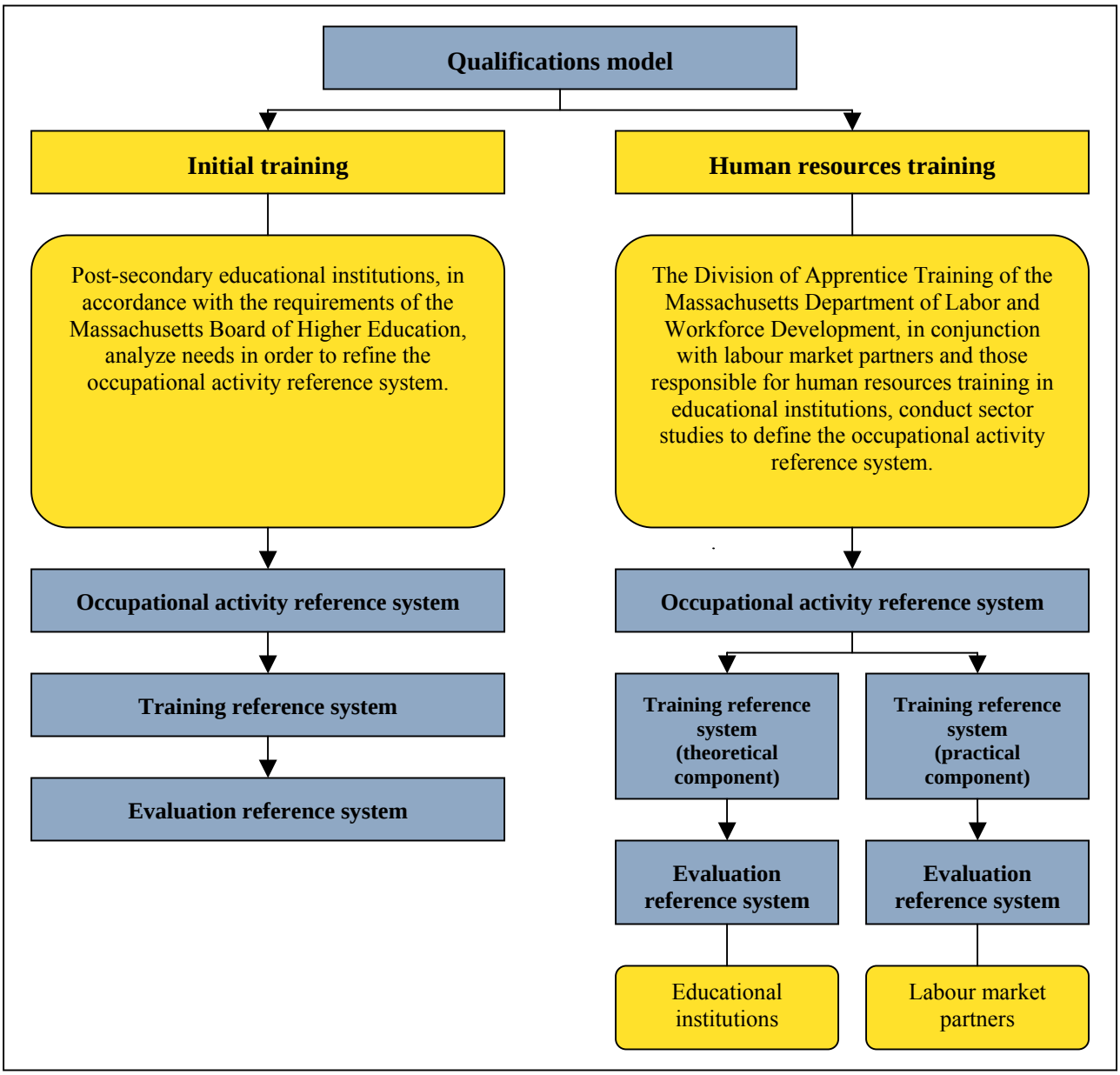
The occupational activity reference system used in the workplace

Workplace training ensures that individuals progress in their mastery of the skills required to perform an occupation. The skills they must master by the end of their training are enumerated in the occupational activity reference system. These skills are defined through sector studies by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development, employers, professional associations and those responsible for pre-apprenticeship programs, apprenticeship programs and continuing training or professional upgrading activities at educational institutions.

Based on the occupational activity reference system developed by the Massachusetts Department of Labor and Workforce Development and its partners, the training reference system and the evaluation reference system have two components. First is the theoretical training component in the education system via the educational institutions. The second component is practical training in the workplace, via employers participating in various human resources training programs.[53]

53. Note that, to have apprenticeship standards, an occupation must be recognized by the federal government as a regulated occupation. Note also that each year the federal government recognizes new occupations.

Figure 3.4 The occupational qualifications model in Massachusetts



3.5.2 Development and approval process for programs of study offered in post-secondary educational institutions

Programs of study are developed by the community colleges and the state colleges. Thus, when a post-secondary educational institution observes a training need in the community it serves, it prepares a program of study plan in accordance with the requirements set by the Massachusetts

Board of Higher Education.[54] The program of study is then submitted to the board for approval following an established procedure.

In evaluating new programs of study, the post-secondary educational institution must meet the following criteria:

- demonstrate that the program arises from a need, taking into account student interest in the program along with the interests of employers, professional associations, the needs of the community and employment opportunities
- present the program objectives and the skills graduates will acquire
- demonstrate that the program meets the requirements of the Massachusetts Board of Higher Education concerning the minimum number of credits, the proportion of general training and the admission criteria
- demonstrate that the program meets the standards of the body governing the occupation in question, if applicable (a professional order, for example)
- demonstrate the program's coherence with the educational institution's priorities and mission and, more broadly, with those of the post-secondary and university education system
- prepare a list of similar programs of study offered by other educational institutions in the state, indicating the differences and similarities in comparison to the proposed program and demonstrate the coherence and relevance of the proposed program in relation to the others
- demonstrate that the program adequately covers the proposed field of study
- demonstrate that the program fosters continuity of training paths
- demonstrate the institution's capacity to adequately implement and offer the program (teaching staff, material resources, experience in similar programs, etc.) and present a quality assurance strategy
- provide a detailed evaluation of the costs of implementing the program and the annual operating costs (human and material resources)
- provide an evaluation of the number of registrants in the first year and the number of graduates in the first graduating year
- present a student recruiting plan and determine the type of student desired
- present a strategy to foster student persistence and completion of the program

After evaluating the program of study plan, the Massachusetts Board of Higher Education sends a summary of the project to all state post-secondary educational institutions and other organizations to gather comments about the relevance of the program. When necessary, the project is evaluated by experts in the field of study covered by the program. However, when the Massachusetts Board of Higher Education approves a program, it only authorizes the institution that planned the project to offer the program. As a result, institutions that wish to implement a program already offered in another institution must follow the same procedure and provide the same information.

54. To reduce the costs of the education system, a 1996 policy of the Massachusetts Board of Higher Education requires post-secondary and university educational institutions to abolish an existing program of study when they wish to develop a new one. The abolished program must be similar to the proposed program in terms of the resources used.

An institution may wish to create a new program of study involving up to 30 credits or make minor modifications to an existing program. In these cases, it simply informs the Massachusetts Board of Higher Education in writing 60 days before doing it.

Finally, national organizations independent of the Massachusetts Board of Higher Education have their own system for approving programs of study proposed by post-secondary educational institutions. As an indicator, they include the National Accrediting Agency for Clinical Laboratory Sciences, the Commission on Dental Accreditation of the American Dental Association, the National League for Nursing and the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association. Although educational institutions are not obligated to consult them, they can nonetheless seek their approval to ensure the proposed programs of study correspond to the standards associated with the occupations in question.

3.5.3 Evaluation of programs of study

In 1997, the Massachusetts Board of Higher Education, in conjunction with the post-secondary educational institutions, took on the mandate of developing a performance assessment system for the institutions, which includes an evaluation of the relevance of the programs of study offered. Such a system is intended to foster better administration of the network and more efficient management of public funds as well as producing data on the measurable results of the Massachusetts post-secondary education system.

Performance assessment of post-secondary educational institutions

Developed in 1997, the *Performance Accountability System* that assesses the performance of post-secondary educational institutions was partially implemented in 1999. Improvements were then made as needed. Implementation of the system will be completed in 2005 and the performance of all state post-secondary educational institutions will be assessed. Note that assessment of institutional performance will have no effect on the financing they receive. However, institutions with unsatisfactory performances will have to develop a performance improvement plan in conjunction with the Massachusetts Board of Higher Education.

The indicators used in the *Performance Accountability System* to assess institutional performance were developed by the Massachusetts Board of Higher Education. They include the following:

- geographical and financial accessibility
- student achievement
- student admission criteria and quality of training
- resource management
- regional needs for human resources training
- cooperation between post-secondary educational institutions
- cooperation with elementary and secondary schools
- fundraising
- cooperation with the Massachusetts Board of Higher Education to disseminate data

Evaluation of the relevance of programs of study

In 1997, the Massachusetts Board of Higher Education undertook to evaluate the relevance of post-secondary and university programs of study. Relevance is evaluated by the average number of graduates in each program of study over a three-year period. The Massachusetts Board of Higher Education determined that this average must be five graduates for programs of study leading to an associate degree, bachelor's degree or master's degree. The limit is three graduates for programs of study leading to a doctorate. To achieve the prescribed limit, new programs of study leading to an associate degree, bachelor's degree or master's degree can take three years while new programs of study leading to a doctorate can take five.

When a program of study does not achieve the limit set for graduates, the Massachusetts Board of Higher Education abolishes it unless the institution that offers the program demonstrates the value of maintaining it. From 1997 to 1999, the process of evaluating the relevance of programs led to the abolishing of 72 post-secondary and university programs of study. However, nine programs that did not meet the graduation limit were nonetheless maintained. To this end, the educational institutions that offer them have made a commitment to the Massachusetts Board of Higher Education to develop strategies aimed at increasing the graduation rate in the programs of study in question.

3.6 Evaluation of learning

Evaluation of the learning achievements of students in a vocational training program offered at the post-secondary level is discussed in terms of the learning evaluation process and the accreditation of studies.

3.6.1 The learning evaluation process

The learning evaluation process is closely linked to the occupational qualifications model it fits into. In Massachusetts, the occupational qualifications model is characterized by the use of two occupational activity reference systems, one for training offerings within the education system and one for training offerings in the workplace. As a result, the process of evaluating the learning achievements of students completing their studies in a training program at an educational institution differs from the learning evaluation process for students completing their training in the workplace.

Evaluation of learning achieved in the education system

The evaluation of learning achievements by students in a vocational training program is the responsibility of the board of trustees of the educational institution that offers the program. In effect, when a program of study is developed—the training reference system —, the institution must present the target objectives and the skills to be acquired by graduates. Accordingly, the institution must propose an evaluation strategy—the evaluation reference system—to verify that the program objectives have been achieved and that students have mastered the required skills so that appropriate credentials can be awarded. Thus, no Massachusetts government authority can impose standardized testing to evaluate students' skills as they complete their studies in a vocational training program.

The overall strategy for evaluating student learning achievements in a program is thus determined when the educational institution develops the program. The strategy includes the conditions of overall testing of mastery of the skills targeted by the program of study in question. However, it is up to the teaching staff to develop the specific conditions required to evaluate the learning achievements of students in each course within the program. These conditions relate to the number and type of tests—oral or written, objective format or composition form, for example —, when they take place during the semester and the skills they are intended to evaluate. It is thus worth noting that partial evaluation tests aimed at assessing progress in mastering skills generally take place seven weeks after the semester begins (mid-semester evaluations) and that final examinations aimed at assessing mastery of skills in each course within a program take place during the last week of the semester.

Evaluation of learning achieved in the workplace

The evaluation of learning achievements by students completing studies in a pre-apprenticeship or apprenticeship program is a joint responsibility. It is shared by the board of trustees of the educational institution that offers the theoretical component of the training and the employer that offers the practical component under the supervision of the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development.

As noted, the occupational activity reference system developed by the Massachusetts Department of Labor and Workforce Development and its partners is used by educational institutions and employers who deal with apprentices to develop the training reference system and the evaluation reference system. Thus, educational institutions organize theoretical elements of the training program and the associated evaluation strategy while employers plan the practical elements of the training—in particular the conditions of apprenticeship and evaluation procedures.

The evaluation of learning achievements by students in a pre-apprenticeship program occurs through testing by high school teaching staff. The purpose is to assess whether theoretical knowledge covered by the program and the general training component of the secondary studies have effectively been acquired. This learning evaluation process also involves evaluations in real working situations. They are designed to assess the acquisition of skills specific to the occupation in question and are organized by the employer in conjunction with those acting as program mentors.

Similarly, the evaluation of learning achievements by students in an apprenticeship program involves two distinct modes. The first consists of testing by the teaching staff of the vocational technical school or community college. This is intended to assess the acquisition of theoretical knowledge related to the occupation covered by the program. The second mode involves testing in real work situations organized by the employer. The goal here is to assess the acquisition of skills specific to the occupation in question.

3.6.2 Accreditation of studies

As illustrated in Table 3.1, only three types of state diplomas are granted to students who successfully complete studies in a vocational training program offered in Massachusetts. They are the:

- Certificate of Occupational Proficiency granted by the Massachusetts Department of Education upon completion of a program at a vocational technical school
- Certificate of Completion of Pre-Apprenticeship granted by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development upon completion of a pre-apprenticeship program
- Certificate of Completion of Apprenticeship granted by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development upon completion of an apprenticeship program

Thus, all other diplomas under Massachusetts vocational programs of study come from the institution itself. In fact, the accreditation of studies is a responsibility of the board of trustees of each school, college or university. However, the boards of educational institutions must respect the requirements of government organizations on this subject.

Similarly, high schools and vocational technical schools, which grant Secondary Studies Diplomas, must respect the requirements of the Massachusetts Department of Education, particularly with respect to the number of credits necessary to earn the diploma. As for the community colleges, state colleges and the University of Massachusetts, which grant the certificate, the associate degree and the bachelor's degree, among others, they must take into account the recommendations of the Massachusetts Board of Higher Education, particularly with respect to the number of credits necessary to earn the diploma and the minimum cumulative average required to achieve the objectives of a program of study, i.e. 2.0 points, or a mark of C.

Table 3.1 Summary table of vocational programs of study in Massachusetts, by associated study certification and the authority granting it

Program of study	Accreditation awarded	Authority that grants the diploma
Secondary-level vocational training		
Program offered by a vocational technical school	Secondary Studies Diploma	Board of trustees of the vocational technical school
	Certificate of Occupational Proficiency	Massachusetts Department of Education
Tech Prep program	Secondary Studies Diploma	Board of trustees of the high school
Pre-apprenticeship program	Secondary Studies Diploma	Board of trustees of the high school
	Certificate of Completion of Pre-Apprenticeship	Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development
Post-secondary vocational training		
Program leading to a certificate	Certificate	Board of trustees of the community college or state college
Program leading to an associate degree	Associate in Applied Science Degree	Board of trustees of the community college
	Associate in Science Degree	Board of trustees of the community college
Apprenticeship program	Certificate of Completion of Apprenticeship	Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development
University training at the post-secondary level leading to a university degree		
Program leading to an associate degree	Associate in Arts in General Studies Degree	Board of trustees of the community college
	Associate in Arts Degree	Board of trustees of the community college
Program leading to a bachelor's degree	Bachelor's degree	Board of trustees of the state college or the University of Massachusetts

4 The sharing of responsibilities among authorities in Ontario for programs leading to a trade or an occupation within the education system

The fourth chapter of this report deals with the sharing of responsibilities related to programs leading to a trade or an occupation within the education system by authorities in Ontario. The following six aspects are discussed:

- overview of the education system in Ontario
- reforms to the vocational training system in Ontario
- structure of post-secondary education in Ontario
- vocational training in Ontario
- management of vocational programs of study
- evaluation of learning

4.1 Overview of the education system in Ontario

Presentation of the overall education system in Ontario consists of succinctly describing its main characteristics, i.e. the ministries responsible for education and the levels of education.[55] However, before going into further details, it is worth providing a brief description of Ontario.

4.1.1 Brief description of Ontario

Ontario is one of ten Canadian provinces. With an area of 1,076,395 km^2, the province is bordered to the east by Québec, to the west by Manitoba, to the south by the United States and to the north by Hudson's Bay and James Bay. The most populous province in Canada, Ontario has a population of more than 12 million people, representing more than one third of the Canadian population. Ontario's population is concentrated mostly in urban areas, particularly in the cities around the Great Lakes. Although English is the official language of Ontario, French is officially recognized for the purposes of the legal system and the education system.

The economy of northern Ontario depends largely on natural resources, mainly lumber and minerals. By contrast, the southern part of the province is highly industrialized, producing automobiles, appliances, chemical products and paper. However, more Ontarians now work in the tertiary sector while new sectors of economic activity such as financial services and tourism are growing in importance.

55. Some of the data discussed in this chapter were brought to light through two studies produced by the Éduconseil inc. team. They are cited as follows: Fédération des CEGEPS, *Recherche sur les modèles d'enseignement supérieur. Résultat d'une analyse documentaire*, Québec, Fédération des CEGEPs, 2004, 291 p. and Québec, Ministère de l'Éducation du Québec, *Analyse comparative des modèles de formation professionnelle et technique au Québec et dans d'autres États* (Québec: Gouvernement du Québec, 2002).

4.1.2 Ministries responsible for education

In Ontario, two ministries have education-related responsibilities. Elementary, secondary and pre-school education come under the jurisdiction of the Ministry of Education while human resources training, post-secondary and university[56] education come under the Ministry of Training, Colleges and Universities (MTCU) (see Figure 4.1).

The main responsibilities of the Ministry of Education concern the following activities:

- developing policies concerning programs of study
- setting provincial requirements for educational performance
- determining requirements related to earning diplomas
- evaluating and approving pedagogical materials used in schools
- distributing provincial credits to school boards to finance school administration
- adopting regulations concerning the school year, the structure of schools and school boards and the duties of teaching staff and representatives of school boards
- administering provincial schools attended by students with hearing, vision or learning difficulties
- ensuring school boards and other organizations respect the *Education Act* and the related regulations
- accrediting private schools and ensuring they respect requirements concerning the Ontario Secondary School Diploma (OSSD)

As for the responsibilities of the Ministry of Training, Colleges and Universities, they are broken down into two components: post-secondary and university education and human resources training. Responsibilities for post-secondary and university education include:

- developing policy orientations for colleges of applied arts and technology (CAATs) and universities
- managing policies related to basic and applied research
- authorizing universities to confer degrees
- distributing provincial credits to CAATs and universities
- providing financial assistance programs for students at CAATs and universities
- defining the training programs provided by education faculties
- accrediting private professional education colleges

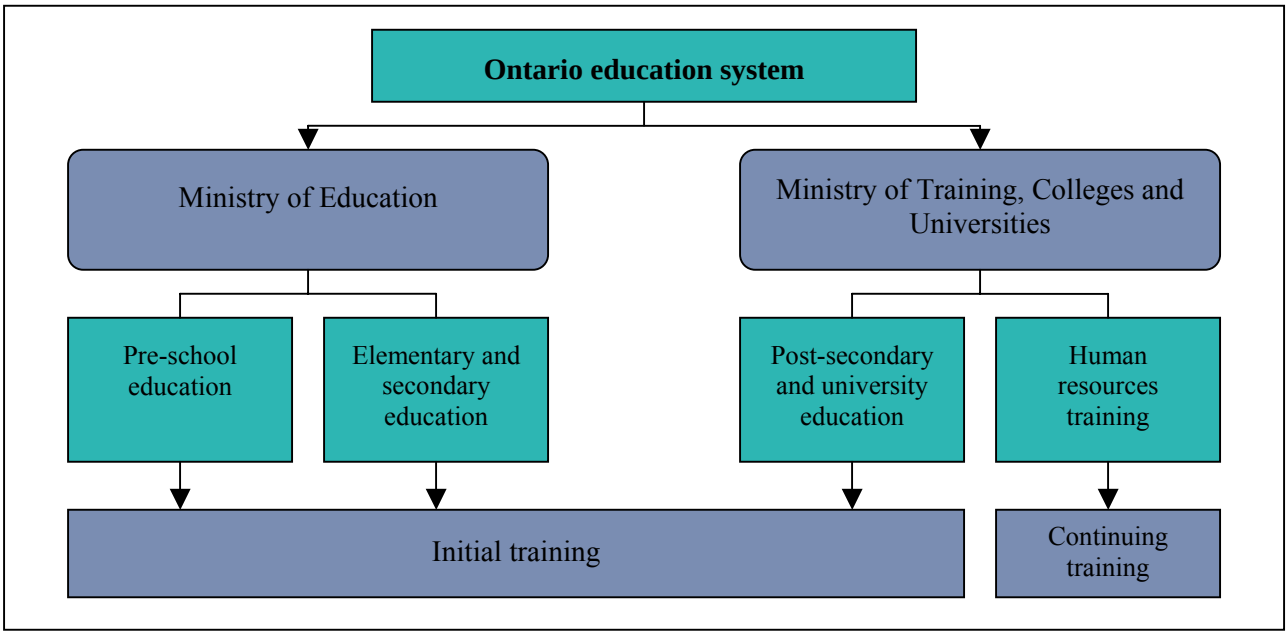
The Ministry's responsibilities for human resources training involve:

- developing the general orientations of adult education and human resources training based on labour market needs
- managing provincial relations with the federal government with respect to human resources training programs

56. As noted, for the purposes of this literature review, "post-secondary studies" refer to programs of study offered in colleges of applied arts and technology and "university studies" refer to those offered in Ontario universities. For more information, refer to the conceptual framework described in section 1.3 of this report.

- setting apprenticeship standards, particularly for occupations governed by the *Apprenticeship and Certification Act, 1998*
- managing provincial programs concerning training in the workplace and entry into the labour market, including apprenticeship, professional upgrading, employment preparation, literacy and general adult training
- conducting research and planning activities related to the labour market[57]

Figure 4.1 Ministries responsible for education in Ontario



4.1.3 Levels of education

In Ontario, education is mandatory from age 6 to age 16. Elementary schools offer elementary-level education from grades one to eight (see Figure 4.2). Secondary programs of study provided in secondary schools take four years, from grades nine to twelve[58]. They lead to the Ontario Secondary School Diploma (OSSD), awarded by the Ministry of Education. To earn the OSSD, students must meet certain criteria, i.e. accumulating 30 credits with 18 in mandatory courses and 12 in optional courses, passing a language skills test in grade ten and completing 40 hours of community service.

Students who drop out before earning the OSSD can receive either the Ontario Secondary School Certificate, or the Certificate of Accomplishment upon meeting certain conditions. Thus, the Ontario Secondary School Certificate can be granted to students who accumulate at least 14 credits with 7 in

57. Data on the mission of the ministries involved are taken from the Web site of the Ministry of education of Ontario <www.edu.gov.on.ca>.
58. Note that in Ontario, unlike in Québec, Lithuania and Massachusetts, there are no vocational training programs at the secondary level.

mandatory courses and another 7 in optional courses. For students with less than 14 credits, the Certificate of Accomplishment can be awarded.[59]

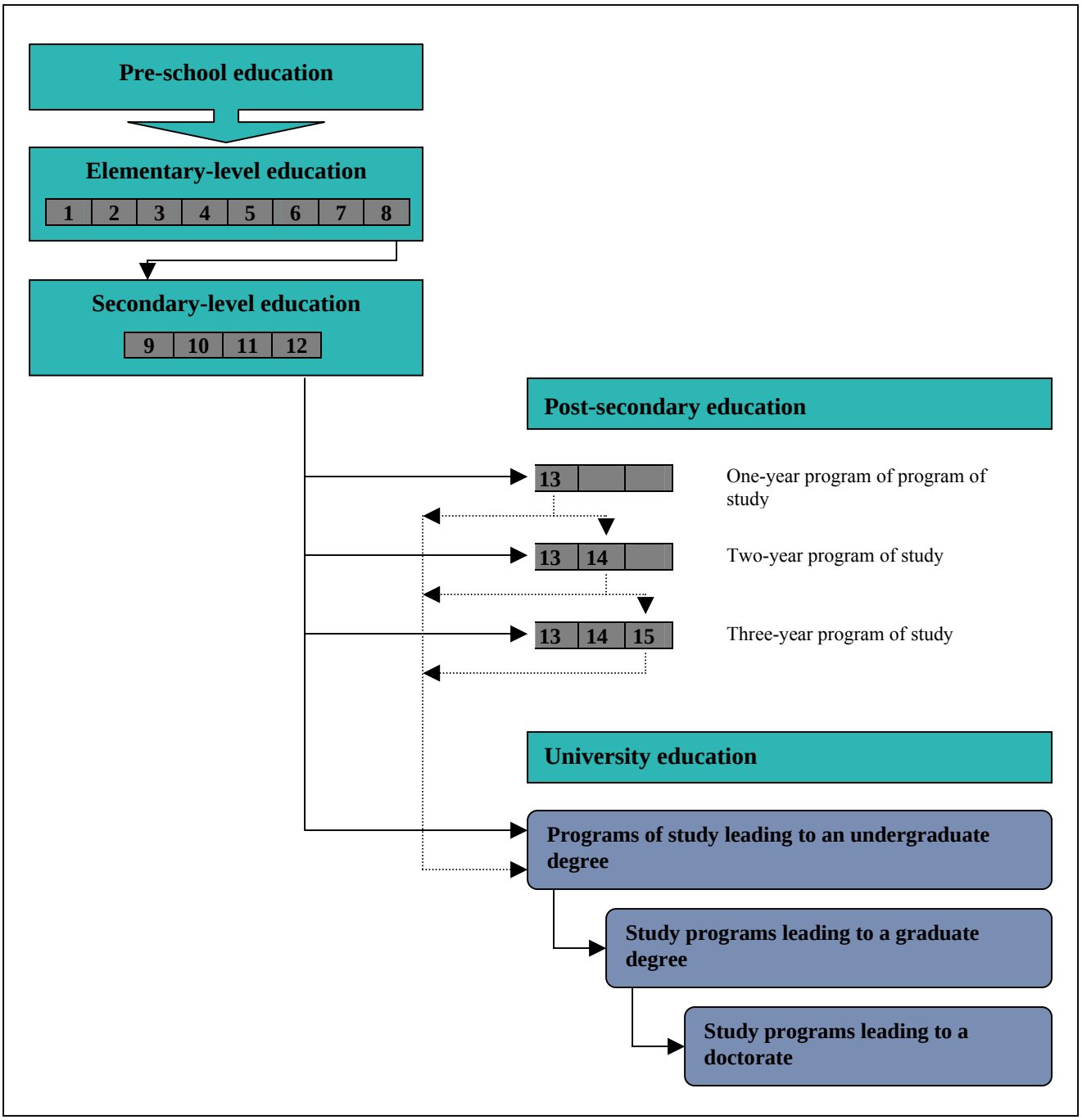
Students who wish to take post-secondary or university studies must register at one of the province's educational institutions, which are grouped into a network of colleges of applied arts and technology (CAATs) and universities.[60] CAATs offer vocational programs of study that take one, two or three years. One-year programs lead to a certificate while two or three-year programs lead to a diploma.

Students who choose university following their secondary studies can register in three or four-year programs that lead to an applied degree. At the end of the undergraduate level, then, the student will have completed fifteen or sixteen years of education.

59. Note that the Secondary Studies Certificate and the Certificate of Accomplishment are granted by the Ministry of Education of Ontario at the student's request.

60. Ontario's network of colleges of applied arts and technology represents more than one hundred service points distributed around the province while the university network provides eighteen outlets.

Figure 4.2 Principal training paths of the education system in Ontario



Source: Fédération des cégeps, *Recherche sur les modèles d'enseignement supérieur. Résultat d'une analyse documentaire* (Québec, Fédération des cégeps, 2004), p. 119 (free translation.)

4.2 Reforms to the vocational training system in Ontario

This section discusses reforms to the vocational training system in Ontario. It focuses on four aspects: the context of the reforms, the objectives of the reforms, the reforms completed and

evaluation of the reforms. It especially concerns reforms to post-secondary education and human resources training.

4.2.1 Context of the reforms

In 1996, the Ontario government formed an advisory committee to define the orientations of reforms to post-secondary and university education. The post-secondary education system was facing both an increase in student numbers and reduced public funding, a situation government authorities saw as jeopardizing the quality of education. The advisory committee conducted public hearings on the following three points:

- the sharing of the costs of education by the public and private sectors and students
- the need for increased cooperation between colleges of applied arts and technology and universities and between post-secondary educational institutions and secondary educational institutions
- the requirements of adapting the network of public and private post-secondary educational institutions to deal with the expected increase in students

The advisory committee submitted its report in December 1996, proposing three major orientations. The first consisted of greater differentiation between institutions focusing on the specialization of colleges of applied arts and technology and maintenance of a two-prong education system with distinct networks of colleges and universities. The second orientation consisted of decentralizing responsibilities, which resulted in greater independence and increased accountability for the establishments. To this end, the advisory committee felt that deregulation was necessary for the development and adaptation of the educational institutions and would focus on tuition, labour relations management and program of study development. However, the deregulation proposed by the advisory committee would be accompanied by greater accountability by educational institutions to guarantee to students and the public that they would efficiently carry out their responsibilities in accordance with recognized standards of quality. Finally, the third orientation focused on the sharing of responsibilities for funding post-secondary education. The advisory committee stressed that the post-secondary education system was facing reduced funding and that this could affect the quality of education. Thus it suggested increasing the resources available for education through the sharing of financial responsibilities by the government, the institutions themselves, students and their families and the private sector.

In 1996 the Ontario government also conducted broad public hearings on modernizing the structure of workplace training, which had been implemented in 1964. The principal stakes of workplace training involved increasing young people's interest in vocational training to deal with demand for skilled labour and encouraging employers to take on apprentices by relaxing regulations. The hearings on workplace training dealt with the following subjects:

- relaxing the legislative and regulatory framework
- the sharing of responsibilities by the ministry, colleges of applied arts and technology and industry in terms of financing the education system and ensuring training offerings
- the funding model for apprenticeship programs
- continuity of training paths

4.2.2 Objectives of the reforms

The general objective of reforms to post-secondary education was to provide the flexibility needed by educational institutions to quickly respond to the requirements of economic development and competition faced by the province's businesses. More specifically, modifications to post-secondary training would focus on:

- ensuring the quality of post-secondary education
- ensuring increased accessibility to post-secondary studies
- reviewing the sharing of responsibilities between the Ministry of Training, Colleges and Universities and the Colleges of Applied Arts and Technology
- promoting a culture of continuing training

The aim of reforming workplace training was to relax the governing legislation to better respond to the needs of the labour market, particularly by enabling the creation of new apprenticeship programs. More specifically, the modifications to workplace training focused on the following objectives:

- improving links between vocational training in the workplace and other post-secondary training programs
- improving the efficiency of these programs
- offering students more choices as to the mode of training, particularly with respect to in-class education
- facilitating movement from one apprenticeship program to another or to post-secondary programs of study

4.2.3 Completed reforms

Discussion of the reforms completed deals with the principal modifications to Ontario's vocational training system. It covers two aspects, reforms to workplace training and reforms to post-secondary education.

Reforms to workplace training

Following public hearings on modernizing workplace training, the Ontario government adopted the *Apprenticeship and Certification Act, 1998*, to replace the 30-year-old *Trades Qualification and Apprenticeship Act* considered too inflexible for the new requirements of today's economic developments. To this end, the new act provides greater flexibility for workplace training by broadening apprenticeship programs into new occupations and diversifying the modes of acquiring skills to enable apprentices to progress at their own speed. The new act expanded the role of labour market partners in terms of developing apprenticeship programs and sectoral committees were made responsible for developing training standards, testing procedures and developing and reviewing apprenticeship programs. The act also requires that individuals who wish to enter an apprenticeship

program must have completed at least grade twelve or the equivalent unless the sectoral committees have determined different education requirements.

Reforms to post-secondary education

Following the recommendations by the advisory committee, the *Post-secondary Education Choice and Excellence Act, 2000* was adopted to increase the number of places available and to diversify offerings of post-secondary programs of study. The act enabled Colleges of Applied Arts and Technology (CAATs) to offer applied programs of study leading to a university degree and promote the creation of more private post-secondary institutions in Ontario. The new act also called for setting up a Post-secondary Education Quality Assessment Board, an independent body tasked with evaluating new CAAT and university programs leading to a university degree and making recommendations to the Ministry of Training, Colleges and Universities on whether or not to approve them.

In addition, the Ontario government adopted the *Ontario Colleges of Applied Arts and Technology Act, 2002*. It established a new charter granting CAATs greater independence. The charter enables them to better respond to the specific needs of the communities they serve, their students and the local economy, taking into consideration their respective fields of specialty. The new charter accordingly enables CAATs to concentrate on specific training sectors corresponding to community needs.

In addition to the possibility of having different missions for each institution, the new charter redefined the sharing of responsibilities between the ministry and the colleges of applied arts and technology, among other things by increasing the independence of the colleges. In return, the colleges must be more accountable for their use of public funds. The ministry sets policies and guidelines for program of study development and defines expected learning outcomes through the development and adoption of program standards. It also determines the framework of responsibilities that incorporate efficient management principles. These accountability measures make it possible to compare results with target objectives and propose policies and incentives to achieve them. It also specifies the information to be collected for the CAATs' annual reports. Finally, it grants funding to each CAAT after reviewing the institution's activities plan. As for the CAATs themselves, they must adopt an annual activities plan that presents the colleges' mission, commitment to student services, progress to be made in terms of appropriate performance indicators, a strategic plan for human resources and their financial situation. The CAATs can also establish partnerships with regional organizations and other post-secondary educational institution on behalf of students, which may require additional funding from the ministry.

Finally, the *Ontario Colleges of Applied Arts and Technology Act, 2002* modified the rules for approving programs of study. In effect, until January 2005, the Ministry of Training, Colleges and Universities was responsible for approving new programs of study developed by the Colleges of Applied Arts and Technology. From February 1, 2005, new programs of study offered by CAATs are reviewed by the Ontario College Credentials Validation Service (CVS). A branch of the Association of Colleges of Applied Arts and Technology of Ontario (ACAATO), the Credentials Validation Service was set up to provide concrete follow-up to the self-regulating mechanism of

Ontario's colleges of applied arts and technology. This service is run by a board of directors with members from the network of CAATs.[61]

4.2.4 Evaluation of the reforms

Despite modifications to post-secondary training during the 1990s, the Ontario government decided in the fall of 2004 to conduct new public hearings on the structure and funding of the post-secondary education system. An advisory committee was created to develop a strategic plan that would be financially viable over the long term. The hearings dealt with five themes:

- the accessibility of post-secondary education
- the quality and relevance of post-secondary education, which should lead to the acquisition of knowledge and skills necessary to perform occupations within an economy based on knowledge and technological innovation
- cooperation between educational institutions to facilitate continuity of training paths
- long-term funding of the post-secondary education system
- accountability by educational institutions[62]

As in 1996, issues of system funding, accessibility and the quality of post-secondary education were central concerns of these new public hearings. It seems then that the objectives targeted by the 1996 reforms were not achieved. In any case, the advisory committee's report noted the persistence of some inequality in accessing post-secondary education, specifically by individuals from low-income families, Aboriginals, residents of northern Ontario, Francophones and people with handicaps. In effect, while the sharing of financial responsibilities by government, educational institutions, the private sector, students and their families, as proposed in 1996, had indeed increased the resources of the post-secondary education system, it was mostly students who were footing the bill through tuition fees. The issue of accessibility thus proved to be closely linked to financing concerns.

The advisory committee lamented that the quality of post-secondary education was not reviewed in an external process giving rise to comparable data from all institutions. The advisory committee brought to light the following facts:

- existing mechanisms evaluate the performance of educational institutions and the entire system in terms of placement rates of graduates, satisfaction rates by graduates, employer satisfaction, student satisfaction concerning training and graduation rates
- colleges of applied arts and technology must regularly examine the quality and relevance of the programs of study they offer
- new programs of study are subject to approval by the ministry or the quality assessment board when a university degree is involved

61. For more information on the Credentials Validation Service, refer to the Web site of the Association of Colleges of Applied Arts and Technology of Ontario <www.acaato.on.ca>.

62. Refer to the following document: Ministry of Training, Colleges and Universities, *Higher Expectations for Higher Education. A Study of Post-secondary Education. Discussion Paper* (Toronto, Government of Ontario, 2004). Refer also to the following report, produced after public hearings: Bob Rae, *Ontario: A Leader in Learning. Report and Recommendations* (Toronto, Government of Ontario, 2005).

- with the exception of studies by *Maclean's* magazine or the *Globe and Mail* newspaper, students cannot compare the quality of programs of study offered by different educational institutions

The advisory committee's report stresses that increased cooperation between colleges of applied arts and technology and with universities is essential to facilitating student mobility between educational institutions. Currently, agreements between institutions are voluntary and cover only some of the programs offered. The advisory committee thus proposed the creation of a coherent system to recognize credits and foster student mobility between institutions, programs of study and different training paths.

4.3 Structure of post-secondary education in Ontario

We will now discuss the structure of post-secondary education in Ontario. This involves describing the colleges' mission and their legal organization.

4.3.1 Mission of colleges

Colleges of applied arts and technology (CAATs) are governed by the *Ontario Colleges of Applied Arts and Technology Act, 2002*. It defines the primary mission of CAATs as offering a full program of post-secondary education and preparatory trade training, i.e. in preparation for an occupation. It also involves responding to the needs of the labour market and supporting the economic and social development of the community. Note that vocational programs of study lead to a certificate or diploma while university programs of study lead to an applied degree.

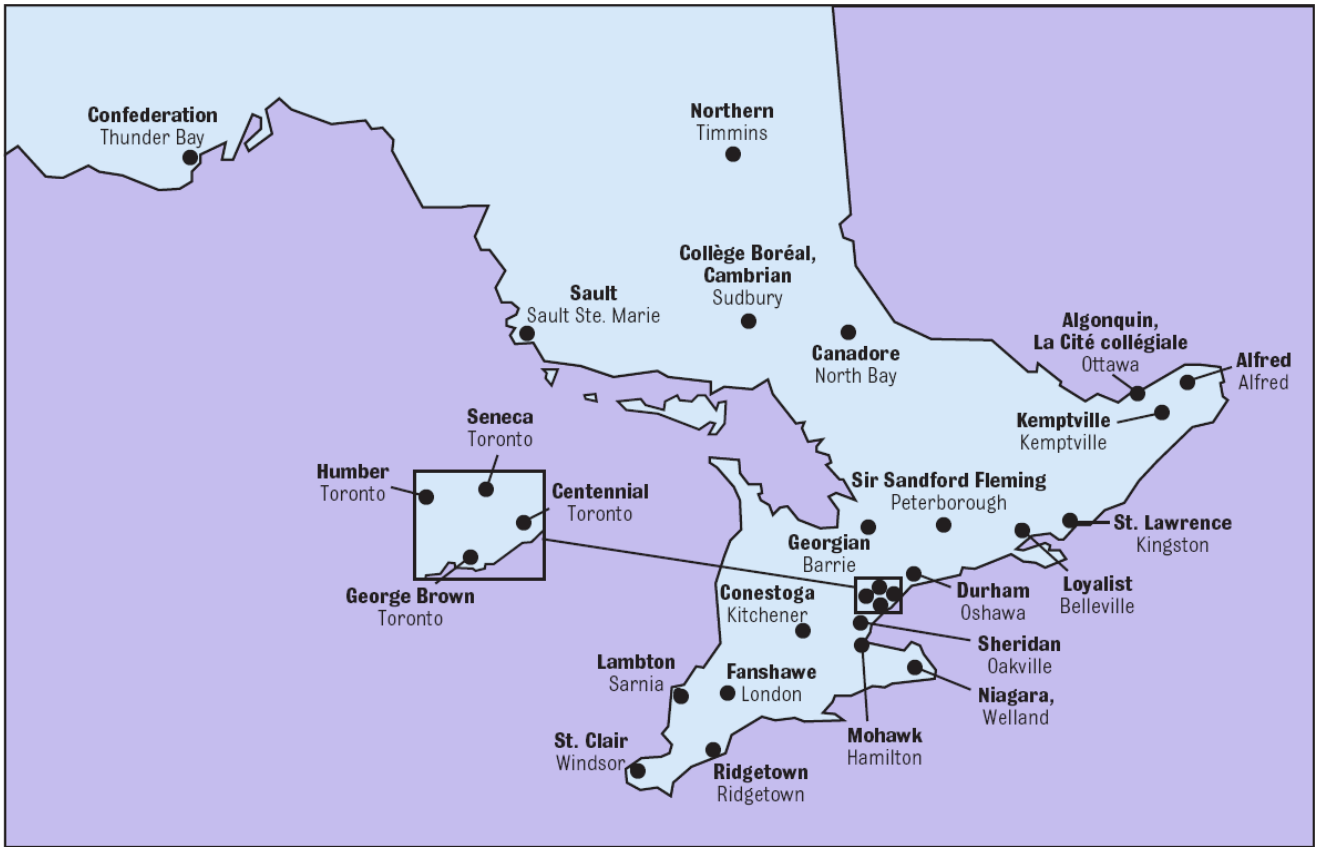
The network of colleges includes both public and private educational institutions. There are 29 colleges in the public network, including two Francophone colleges, with three types of institutions. The 25 colleges of applied arts and technology are distributed across the province (see Figure 4.3). There are three agricultural colleges, two of which are in the northern part of the province (Kemptville College, Collège d'Alfred) and one in the south (Ridgetown College). Finally, the Michener Institute in Toronto specializes in applied health sciences.

In addition to the public colleges, there is a network of private professional education colleges. They are governed by the *Private Career Colleges Act*, and offer post-secondary programs of study.[63] In January 2005, there were 450 private colleges within the network. Most private colleges—known as *Career Colleges*—orient their training around courses in preparation for certain occupations at the entry point into the labour market. The programs of study offered by these colleges are intended for students who wish to reinforce their specific knowledge with a view to entering the labour market, those who may be less interested in general cultural studies and those who wish to acquire knowledge complementary to what they have already learned in order to increase their employability. For example, the Academy of Learning offers programs of study in the field of computer network maintenance and installation, office automation and customer service. The

63. As an indicator, note that during the 1997-1998 school year, private colleges drew nearly 15% of the students registered in post-secondary programs of study.

college's computer programs lead to an Industry Certification, a diploma recognized by major corporations in the computer industry such as Microsoft.

Figure 4.3 Distribution of Colleges of Applied Arts and Technology in Ontario



Source: Web site of the Ministry of Training, Colleges and Universities <www.edu.gov.on.ca>.

4.3.2 Legal organization of colleges

The legal organization of colleges is discussed in terms of the legislative framework and the management bodies involved in administering them.

Legislative framework

As noted, the Colleges of Applied Arts and Technology (CAATs) are governed by the *Ontario Colleges of Applied Arts and Technology Act, 2002*. Adopted in April 2003, it defines the legal framework of Ontario CAATs, particularly with respect to the conditions of their administrative functions. Note that the act specifies that the CAATs are run by a board of directors which then creates an advisory committee for each program of study offered.

The act also contains provisions concerning the hiring of teaching staff and the management of labour relations. In addition, it provides directives on negotiating collective agreements by management and unions representing the teaching staff. The act also created the College

Compensation and Appointment Council (CCAC). The members of this province-wide organization for colleges of applied arts and technology are appointed by the Lieutenant Governor in Council. It acts on behalf of the employer for the purposes of negotiating collective agreements with teaching and support staff at the CAATs under the Ontario Public Service Employees Union (OPSEU).

Management bodies

In accordance with the provisions of the *Ontario Colleges of Applied Arts and Technology Act, 2002*, each CAAT is managed by a board of directors and several advisory committees.

Board of directors

The responsibilities of these boards are defined in *Ontario Regulation 34/03* under the *Ontario Colleges of Applied Arts and Technology Act, 2002*. The board of directors is composed of twelve to twenty members appointed by the College Compensation and Appointment Council from a list of individuals proposed by the CAAT. The board also includes a student representative, a member of the teaching staff, a member of the administrative staff and a member of the support staff, all elected by their peers.

The primary responsibility of the board is to manage and administer the affairs of the college of applied arts and technology. As a result, it must prepare and submit to the Ministry of Training, Colleges and Universities an annual report on the college's financial statements, which are audited by an accounting firm. Under the conditions set by the College Compensation and Appointment Council, the board has the power to appoint the college's president, the administrative staff and the teaching and non-teaching staff. It also has the power to remove the college president if necessary.

Advisory committees

An advisory committee is created for each of the college's programs of study or group of programs of study associated with a training sector. The college's board determines their composition, mission and mode of financing. They bring together employers, students, graduates, college representatives and anyone else who can contribute to the work of the committee. This means the committee's composition must ensure representation from outside the college by individuals whose professional expertise can contribute to the development of relevant programs of study adapted to the needs of the community. The committees must meet at least twice a year to discuss trends and changes in the fields covered by the various programs for which they are responsible.

The mission of the advisory committees is to advise the board of directors and formulate recommendations on modifications to existing programs of study or the value of creating new programs or abolishing others. Accordingly, each year the committees analyze program content to assess quality, relevance and suitability in terms of the needs of the labour market.

4.4 Vocational training in Ontario

Discussion of vocational training in Ontario covers four main topics: the principal characteristics of programs of study, the pedagogical organization of training, admission to Colleges of Applied Arts and Technology and continuity of training paths.

4.4.1 Principal characteristics of programs of study

In Ontario, unlike in Québec, Lithuania and Massachusetts, there are no vocational training programs at the secondary level. However, courses known as Cooperative Education are offered to enable students to gain familiarity with certain occupations. They vary in form and duration but these courses do not lead to a specific diploma. Registered students work towards the OSSD.

There is also the Ontario Youth Apprenticeship Program (OYAP), which generally takes three or four semesters. This pre-apprenticeship program enables students to begin apprenticing in an occupation during the final years of their secondary studies and to continue their apprenticeship through post-secondary studies. If they meet the requirements, students in this program earn the OSSD and the credits accumulated under the program are recognized when they register for an occupational apprenticeship program.

Post-secondary vocational training

In Ontario, there are four types of vocational training programs at the post-secondary level: apprenticeship programs, programs of study leading to a certificate, programs of study leading to a diploma and programs of study leading to a *post diploma*. It is the colleges of applied arts and technology that offer these vocational training programs.

Apprenticeship programs

Apprenticeship programs are human resources training programs focusing on occupational apprenticeship in real work situations. These programs include a practical training component offered by businesses and a theoretical training component provided by the colleges of applied arts and technology. Theoretical training rarely represents more than 30% of the apprenticeship period. The apprenticeship takes two to six years depending on the occupation in question. More than one hundred occupations are covered by such programs. Apprenticeship programs relate to semi-specialized and specialized occupations in very diverse sectors of economic activity ranging from construction to manufacturing, from personal services to businesses to agriculture and horticulture, from artisanal work to social services and education.

Programs of study leading to a certificate

Programs of study that lead to a certificate prepare students for entry-level employment in the labour market. These programs require one year or less of full-time practical training at a CAAT.[64] In

64. As an indicator, note that during the 1999-2000 school year, 73 programs leading to a certificate were offered at Ontario's 25 colleges of applied arts and technology. Ministry of Training, Colleges and Universities, *A Summary of the*

general, all courses in a program of study leading to a certificate are core courses, i.e. focused on vocational training specific to the occupation in question. These programs then have no general training component.

Programs of study leading to a diploma

Programs of study leading to a diploma enable students to acquire the skills needed for an occupation or a group of related occupations. They take two or three years and are offered by colleges of applied arts and technology.[65] The program structure in terms of courses can vary. Two-year programs of study may include two mandatory English courses and one or two optional general training courses. The other courses relate to the field of study and are mandatory. In three-year programs, in addition to the mandatory courses in the field of studies, there are two mandatory English courses and three optional general training courses.

Programs of study leading to a post diploma

Programs of study leading to a *post diploma* focus on the acquisition of new skills or upgrading of skills acquired through initial training. These programs thus enable students to specialize in a specific field after earning a certificate, a diploma or a university degree in the same specialty.[66] Study programs leading to a *post diploma* generally take one year.

University training leading to an applied degree at the post-secondary level

Under the *Post-secondary Education Choice and Excellence Act, 2000*, certain Colleges of Applied Arts and Technology are authorized to offer programs of study leading to an applied degree. These programs involve specialized training at the undergraduate level and take four years, including six semesters of in-school training and at least two semesters of compensated practicums. The primary goal of these programs of study is to prepare the student for the labour market rather than further study, i.e. graduate-level studies. They are thus offered in fields of study leading directly to the workforce.[67] Accreditation under this program is granted by the college.

4.4.2 Pedagogical organization of training

The pedagogical organization of post-secondary training is the responsibility of each of Ontario's CAATs. In effect, each college can establish its own calendar independently meaning that the pedagogical organization varies between educational institutions. However, the general situation observed in most educational institutions can be described.

Employment Experience of 1999-2000 College Graduates Six Months after Graduation (Toronto, Government of Ontario, 2001) p. 20.

65. Note that during the 1999-2000 school year, 158 two-year programs leading to a diploma were offered at Ontario's 25 Colleges of Applied Arts and Technology. Note as well that 101 three-year programs leading to a diploma were offered at Ontario's 25 CAATs. ***Ibid.***

66. During the 1999-2000 school year, 83 programs leading to a *post diploma* were offered at Ontario's 25 Colleges of Applied Arts and Technology. ***Ibid.***

67. During the 2000-2001 school year, about 25 programs of study leading to an applied degree were offered by Ontario's Colleges of Applied arts and Technology. Web site of the Post-secondary Education Quality Assessment Board <www.peqab.edu.gov.on.ca>.

Typically, the school year is divided into two semesters lasting fifteen weeks that begin on September 1 and end on April 30. At certain colleges, specifically Algonquin College, a week of exams may be added to the fifteen weeks of courses while at others, such as the Cité collégiale, the examination period is included in the normal semester period.

4.4.3 Admission to Colleges of Applied Arts and Technology

Discussion of the characteristics of admission to Ontario's Colleges of Applied arts and Technology (CAATs) covers two points. They concern college registration and the conditions of admission to colleges.

College registration

Registration at one of Ontario's Colleges of Applied Arts and Technology is centrally managed through the Ontario College Application Services (OCAS),[68] an administrative unit of the Ministry of Training, Colleges and Universities. Students who wish to register at a CAAT complete the OCAS form available at most secondary schools, colleges and on the OCAS Website. They then return them to OCAS with a copy of their transcript.

Conditions of admission to colleges

The board of directors of each college of applied arts and technology determines the conditions of admission. They must comply with the requirements of the Ministry of Training, Colleges and Universities under the *Ontario Colleges of Applied Arts and Technology Act, 2002*.

The general admission criteria for CAATs relate essentially to the Ontario Secondary School Diploma or the equivalent, including a secondary studies diploma granted in other Canadian provinces.[69] Note that individuals age 19 or over who do not hold an OSSD may be admitted to the CAATs in programs with no specific requirements if they pass an aptitude test developed for this purpose.

Admission to most programs of study involves specific program-related requirements. Such requirements mainly comprise prerequisites. The admission criteria for each program of study are defined by the department that offers the program in question and are subject to approval by the college's board of directors.

68. For more information on registration at Ontario's Colleges of Applied Arts and Technology, refer to the Web site of the Ontario College Application Services <www.ontariocolleges.ca>.

69. Note that the general criteria for admission to colleges in most other Canadian provinces are comparable to those for Ontario Colleges of Applied Arts and Technology. In Alberta, for example, admission criteria are determined by the colleges and mainly concern the Secondary Studies Diploma for students continuing their training and passing equivalency exams for individuals age 18 or over who do not have a secondary studies diploma. Similarly, in Nova Scotia, the general admission criteria refer to the secondary studies diploma or to passing an educational aptitude test for individuals age 19 or over who do not hold such a diploma.

4.4.4 Continuity of training paths

Continuity of training paths for vocational training is an essential component of the pedagogical accessibility of the training. Continuity is achieved through creating diverse access paths toward training programs and bridges between levels of education. In general terms, in Ontario, continuity of training paths refers to the fact that vocational programs of study offered by colleges of applied arts and technology open the way toward other vocational programs of study of longer duration or within a specialty (*post diploma*) or even university programs of study.

To this end, in 1999, the College-University Consortium Council (CUCC) developed the *Ontario College-University Degree Completion Accord*, also known as the Port Hope Accord. Designed to promote voluntary agreements between CAATs and universities, the agreement provides guiding principles on the recognition of credits earned by students. Thus, the structure proposed under the accord seeks to promote continuing in a university program of study in the same field after earning a post-secondary studies diploma by granting equivalencies where course content corresponds to that of the selected university program of study. Pursuing university studies on such a basis assumes that the knowledge students have acquired through post-secondary studies is equivalent to the knowledge disseminated through university programs of study. Accordingly, to ensure that the requirements of a university degree will be met while respecting the mission of the colleges, i.e. offering practical programs of study in various occupational fields, it has sometimes been necessary to modify the content of programs of study leading to a diploma in order to facilitate the transition between levels of education.

The Port Hope Accord has served as the basis for developing 221 agreements between Colleges of Applied Arts and Technology and universities, which has enabled college graduates to have their credits recognized toward a university degree. As an example, note that the University of Ottawa has reached an agreement with the Cité collégiale that enables graduates of the college's *Criminology* program to have 30 credits recognized, including 12 criminology courses, if they are admitted to the *Bachelor's degree in social sciences, criminology* program. Similarly, the Department of Communications at the University of Ottawa offers a *Bachelor's degree in journalism* program in conjunction with the Cité collégiale. The Department of Communications offers theoretical, analytical and critical training while the Cité collégiale provides the practical training. There is a similar agreement between the University of Ottawa and Algonquin College leading to a *Baccalaureate in Journalism*. Algonquin College also has an agreement with Carleton University concerning the program of study leading to a *Baccalaureate in Information Technology*.

We must note that the principle of continuity of training paths has not been implemented by all of Ontario's colleges and universities and affects only a small portion of the programs of study they offer.[70] Certain universities have not reached any agreements with colleges while others have agreed to recognize a restricted number of credits for graduates of certain programs of study. Broke University, for example, grants maximum recognition of seven credits for graduates of a three-year post-secondary program of study when they are continuing their studies in the same field.

70. To this end, the report prepared following public hearings on post-secondary education in 2004 recommends the implementation by 2007 of a universal approach to agreements concerning the completion of diplomas and the transfer of credits from one institution to another, one region to another and province-wide to guide the recognition of credits, admission and the choice of courses by students. Bob Rae, *op. cit.*, p. 45.

4.5 Management of vocational programs of study

This section discusses the sharing of responsibilities by Colleges of Applied Arts and Technology and the Ministry of Training, Colleges and Universities in terms of the management of vocational programs of study. It covers the following three aspects: the occupational qualifications model in Ontario, the development and approval process for vocational programs of study and the evaluation of programs of study.

4.5.1 The occupational qualifications model in Ontario

The occupational qualifications model in Ontario involves two training paths based on distinct occupational activity reference systems (see Figure 4.4). In effect, training in the workplace through apprenticeship programs and training in the education system through programs of study leading to a certificate, diploma or applied degree are based on different standards of apprenticeship developed by distinct committees that may nonetheless involve the same individuals.

Apprenticeship standards in the workplace

To develop workplace training programs, there are two apprenticeship standards in place. The first type are defined by Ontario's sectoral committees and the second type are the Interprovincial Standards (Red Seal) Program.

Apprenticeship standards defined by Ontario's sectoral committees

Under the *Apprenticeship and Certification Act, 1998*, apprenticeship programs are developed in accordance with the occupational activity reference system defined by sectoral committees.[71] They are responsible for determining the skills essential to the performance of a given occupation or group of related occupations and having them validated by experts in the occupation in question. The sectoral committee's document enumerating the validated skills, or occupational apprenticeship standards, then serves as the basis for the development of the apprenticeship program by the Ministry of Training, Colleges and Universities and preparation of the examination the apprentice must complete to earn the Certificate of Qualification (C of Q) granted by the Ministry of Training, Colleges and Universities.

The Interprovincial Standards (Red Seal) Program

There are 45 officially recognized occupations under the Interprovincial Standards (Red Seal) Program. Apprenticeship programs for these occupations, or Red Seal trades,[72] are developed through the previously described process. However, those responsible for developing these programmes must refer to the interprovincial standards produced by sector councils of Human Resources and Skills Development Canada (HRSDC) for each of the 45 occupations in question.

71. In Ontario, there are some forty sectoral committees composed of twelve to fourteen members who represent employers, employer and union associations and labour in various sectors of economic activity.
72. Refer to the Web site of the Interprovincial Standards (Red Seal) Program <www.red-seal.ca>.

Based on an occupational analysis prepared by the Department's Human Resources Partnership Directorate[73] and validated by occupational experts across Canada, the interprovincial standard developed for a Red Seal trade essentially covers the following elements:

- the major fields of responsibility specific to an occupation along with the related tasks and activities
- the specific knowledge and skills necessary to perform the occupation
- trends in the development of the occupation
- the resources used, in particular the various tools and materials
- the results of validation by occupational advisory committees in each province or territory

It is thus through the Interprovincial Standards Program that apprenticeship programs for Red Seal trades are developed. These standards also serve in developing the conditions of evaluating learning. As a result, students in such programs must complete an interprovincial examination to earn the Certificate of Qualification (C of Q) granted by the Ministry of Training, Colleges and Universities, which bears a Red Seal.

Apprenticeship standards within the education system

Colleges of applied arts and technology develop programs of study leading to a certificate, a diploma or an applied degree in accordance with the program standards defined by the Ministry of Training, Colleges and Universities. With regard to program standards, it is appropriate to describe the characteristics of application, program content and the development and validation process.

Application of program standards

Currently, there are slightly more than 200 provincial Program Standards, including 70 for programs in French. However, there is not a Program Standard for all programs of study offered by colleges of applied arts and technology although there are standards for most of the programs offered by many of the colleges. When a college wishes to offer a program of study, it applies to the Ministry and, if no Program Standard is available, the college will determine the standards for the program in question in accordance with the requirements of the *Credentials Framework*.[74]

Content of Program Standards

The Program Standard provides an overview of the performance of an occupation or a group of occupations targeted by a program of study. It describes the main characteristics of the occupation and presents the various types of working environments, working instruments and resources used. The Program Standard covers three components. The first relates to the learning outcomes in

73. Human Resources and Skills Development Canada, *Occupational Standards Development Process* (Ottawa, Public Works and Government Services Canada, Human Resources Partnership Directorate, 2000).

74. Note that the Ministry of Training, Colleges and Universities has no specific mechanism for verifying observance of program standards by colleges. However, the Ministry asks colleges offering a program with a Program Standard to commit, in writing, to respecting it and, if need be, making any appropriate modifications to the program. Respect for provincial standards thus depends on the commitment of the colleges. Note too that the *Credentials Framework* is Appendix A in the Minister's Binding Policy Directive, *Policy framework for colleges of applied arts and technology. Framework for Programs of Instruction*, published April 1, 2003 and revised September 8 of the same year (Toronto, Government of Ontario, 2003). This document is not available to the public.

occupations targeted by the program of study. The second concerns the acquisition of general aptitudes considered essential for personal and professional success. The third component deals with general training and is intended to enable students to discover fields of knowledge that are not directly linked to their choice of occupation. The first and second components relating to learning outcomes and general aptitudes define the essential knowledge and skills the student must master to earn the program of study diploma. Learning outcomes are evaluated based on specific performance criteria. The general training component is not subject to such an evaluation.

More specifically, the first component of the Program Standard focuses on professional skills related to the specialty of the program of study. It is developed in conjunction with partners in socio-economic environments affected by the issue—employers, professional associations—and presents the expectations of the partners with regard to graduates.

As for the second component of the Program Standard, it focuses on general aptitudes related to employability skills. General aptitudes are common to all two and three-year programs of study leading to a diploma. Each Program Standard contains a list of elements related to general aptitudes, which in turn involve communication, comprehension, mathematics, technology, teamwork, problem solving, information processing, time management and adaptation to change and continuing training.

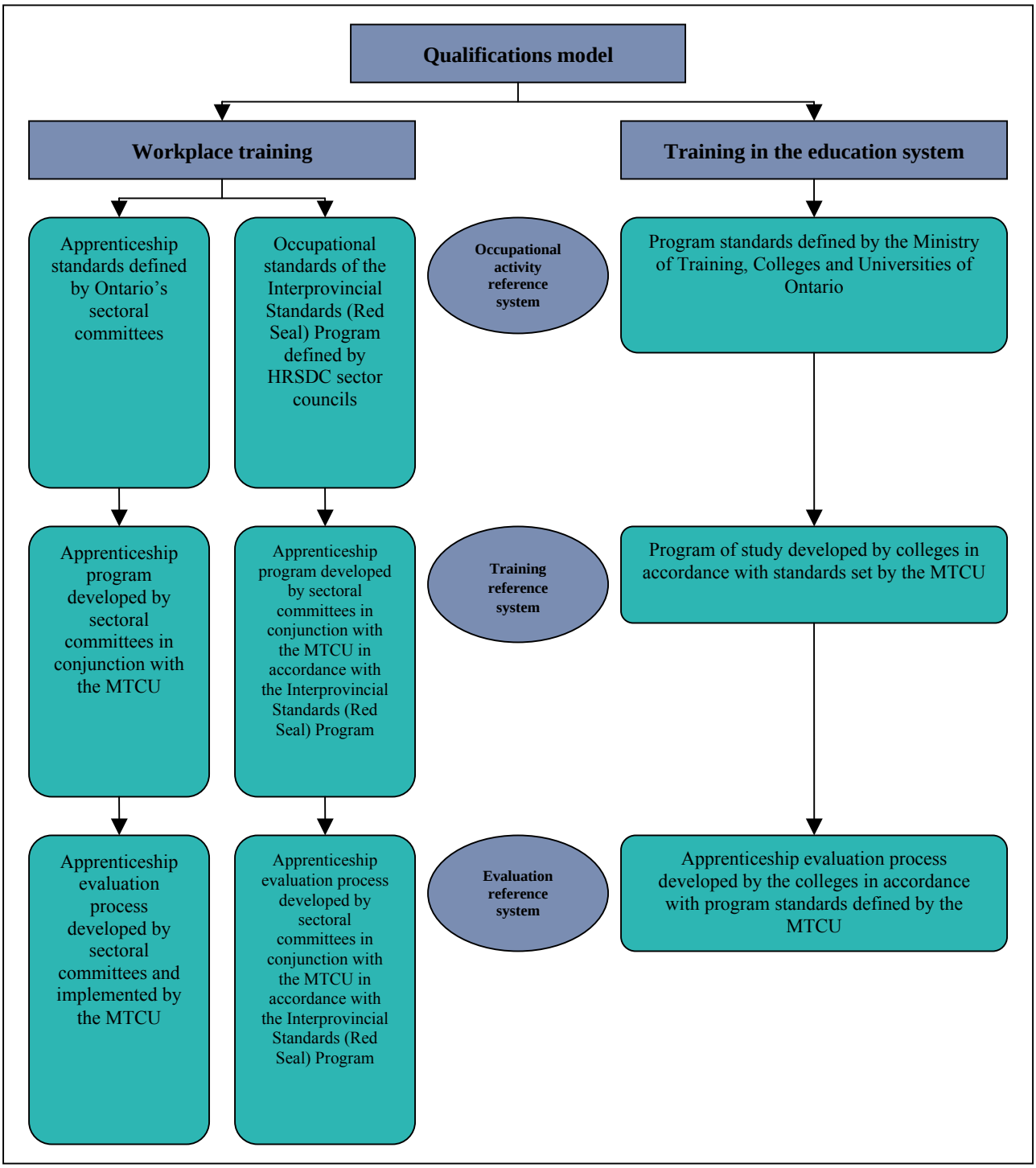
The third and final component of the Program Standard focuses on general training. The Ministry of Training, Colleges and Universities requires that students take one general training course per term, which represents about 45 hours of general training per semester. As for their design, general training courses must follow three Ministry guidelines, i.e.: ensure that students can apply their comprehension of historic issues to the realities of today; be beneficial for students in terms of personal, civic and professional growth and enrichment; promote continuing training as an integral part of the mission of Ontario's colleges. Note that each college is free to offer students the general training courses they prefer in the form of optional courses.

The process of developing and validating program standards

The program standards determined by the Ministry of Training, Colleges and Universities must reflect the needs of the labour market as closely as possible. As a result, when it develops a specific standard, for the purposes of the committee it must bring together not only resource people from the Ministry of Training, Colleges and Universities and the Colleges of Applied Arts and Technology involved in the program of study but also representatives of the businesses and professional associations affected. If necessary, it can also call on specialists in the field in question. After a number of committee sessions, a draft Program Standard is prepared and forwarded to the colleges for validation. Following consultation, the definitive version of the Program Standard is produced by the Ministry of Training, Colleges and Universities and forwarded to the colleges.[75]

75. Note that when it revises a standard, the Ministry of Training, Colleges and Universities forms a control group composed of representatives of colleges and the labour market. The group assesses the Program Standard and then, based on observed trends in the field and changes underway concerning working methods, it suggests modifications to make to the Program Standard. The modifications deal exclusively with the first component of the standard concerning professional skills. The revised standard is based on the recommendations of the group and then forwarded to the colleges for validation by the committee participating in the consultation. Following consultation, the definitive version of the Program Standard is again forwarded to the colleges.

Figure 4.4 The occupational qualifications model in Ontario



4.5.2 Development and approval process for vocational programs of study

In Ontario, management of training offerings is a shared responsibility of the Colleges of Applied Arts and Technology (CAATs), the Ministry of Training, Colleges and Universities and the

Credentials Validation Service. In effect, the CAATs are responsible for determining the offerings of programs of study based on both their strategic orientation and the needs of the communities they serve. Requests to develop, revise or withdraw a program of study come from the advisory committees. Once the board of directors has approved the orientations of the programs of study, the CAAT will conduct a feasibility study to evaluate labour market needs related to the proposed program. It also has demand for the new program evaluated by secondary-level students.

Responsibilities for developing programs of study are shared by CAATs and the Ministry of Training, Colleges and Universities. CAATs develop programs of study in accordance with the program standards defined by the Ministry. However, if there are no standards for the program in question, the CAAT must determine them. The CAAT must also prepare a brief description of the program of study consisting of the training objectives and the occupations involved. Finally, the pilot program of study is submitted to the college's board of directors for approval.

In terms of approval of the programs of study developed by colleges of applied arts and technology, there are two different processes depending on whether the program leads to a certificate, diploma or *post diploma*, on the one hand, or to an applied degree, on the other.

Programs of study leading to a certificate, diploma or *post diploma* are subject to the *Credentials Framework*, which are awarded by the CAATs and, since February 1, 2005, reviewed by the Credentials Validation Service.[76] Thus, to gain approval, programs of study must respect the development criteria set out in the *Credentials Framework*. It provides the baselines to be respected when developing a program leading to a certificate, diploma or *post diploma*. The proposed baselines concern, among other things, the complexity of occupational knowledge and skills to be achieved, the general aptitudes, general training, the duration of the program from start to finish, the conditions of admission to the program and the credentials awarded under the program.

The approval process for programs of study leading to an applied degree differs from the process described above in that the Ministry of Training, Colleges and Universities and the Post-secondary Education Quality Assessment Board are involved. In effect, once the college of applied arts and technology has developed its proposed program, it forwards the project to the Ministry, which turns it over to the board responsible for analyzing it. For the purposes of this literature review, the board forms a quality assessment committee composed of experts in the field of study targeted by the program. The committee's analysis of the proposed program uses selection criteria developed by the board. When its work is complete, the committee reports to the Post-secondary Education Quality Assessment Board, which drafts a recommendation and sends it to the Ministry for review. The Ministry informs the CAAT of its decision to approve or reject the program of study.

Finally, implementation of programs of study is up to the colleges of applied arts and technology. When a program of study is approved, the CAAT is responsible for developing course content and learning activities that will achieve the results proposed in the program standards. The working team must thus approach other Ontario colleges and, if necessary, colleges in other Canadian provinces to collect data useful for developing courses. Once complete course content has been prepared for the

76. It is important to note that the coming into force of the *Ontario Colleges of Applied Arts and Technology Act, 2002* modified the rules for approving programs by transferring the responsibility for approval to this new organization. For more information on the Credentials Validation Service, refer to the Web site of the Association of Colleges of Applied Arts and Technology of Ontario <www.acaato.on.ca>.

project, it is submitted for approval by the advisory committee for the program in question. The advisory committee can suggest modifications to the course content.

4.5.3 Evaluation of programs of study

To ensure the quality and relevance of programs of study, each college of applied arts and technology must implement a mechanism to evaluate the programs of study it offers. Note that there is no provincial policy governing the evaluation and revision of programs of study. Accordingly, each CAAT determines a program evaluation policy adapted to its context.

The example of Algonquin College illustrates the program of study evaluation process. At this CAAT, programs of study are evaluated every five years. The program evaluation process covers the following:

- regular evaluation activities such as surveys on student and graduate satisfaction
- annual compilation of program performance indicators
- analysis of comments from discussion groups involving graduates, employers and members of the advisory committee

The advisory committee for each program analyzes the collected data and makes recommendations to the college's board of directors on how to respond, i.e. making no changes in the program, making appropriate modifications to update it or abolishing the program because it no longer meets needs. When modifications are made, the program of study must be submitted for approval by the Credentials Validation Service as with new programs of study.

4.6 Evaluation of learning

Our discussion now turns to the evaluation of learning achieved by students in a vocational training program. Two aspects are covered: the learning evaluation process and the accreditation of studies.

4.6.1 The learning evaluation process

The development of apprenticeship programs and programs leading to a certificate, a diploma or an applied degree are based on different learning standards with their own definition processes. As a result, the process of evaluating student learning, which is also based on learning standards, is distinct for the two types of programs.

Evaluation of learning achieved in a workplace apprenticeship program

For the Red Seal to be affixed to the Certificate of Qualification (C of Q) granted by the Ministry of Training, Colleges and Universities, apprentices in an apprenticeship program related to one of the 45 occupations subject to interprovincial recognition must complete an examination. It is based on the Interprovincial Standards Program for the occupation in question and is the same across Canada. Note that the apprenticeship program and the learning evaluation process, including the

interprovincial examination, are developed by Ontario's sectoral committees in conjunction with the Ministry of Training, Colleges and Universities in accordance with the Interprovincial Standards Program developed by the sector councils of Human Resources and Skills Development Canada.[77]

For apprenticeship programs that do not lead to Red Seal trades, the learning evaluation process is developed and validated by the sectoral committees. It is implemented by the Ministry of Training, Colleges and Universities, which is also responsible for granting the Certificate of Qualification to students who successfully complete the programs in question.

Evaluation of learning achieved in a vocational program in the education system

Colleges of applied arts and technology develop the process for evaluating student learning achieved in programs of study leading to a certificate, diploma or applied degree. They are responsible for developing and disseminating their own policy on learning evaluation. Thus, in general, students are evaluated at the end of each course of the selected program of study via oral, written or practical testing representing no more than 40% of the final mark for the program. Evaluation of student learning must respect program standards, specifically performance criteria set out in the Program Standard. Finally, the evaluation process for each course within the program is outlined in the course plan teaching staff prepare and give to students at the beginning of the semester.

4.6.2 Accreditation of studies

Colleges of applied arts and technology grant credentials to students who successfully complete a program of study. To earn credentials, students must meet the requirements of each course within a program of study. Evaluation at the end of each course measures mastery of the skills targeted by the program. Some programs require completion of comprehensive testing.

77. As an indicator, note that there are no links between the sector councils of Human Resources and Skills Development Canada and Ontario's sectoral committees.

5 Continuity of training paths: comparison of situations observed in the jurisdictions examined

Continuity of training paths assumes it is possible for a student to continue studying in the same field of specialty while moving from one level of education to another without penalty. It focuses on two main objectives. First, promoting life-long vocational training. And second, preventing roadblocks in career selection. Accordingly, this chapter discusses the situation in this regard in various education systems, bringing to light conditions that foster continuity of training paths. It covers the following four aspects:

- continuity of training paths in Québec
- the situation in North America
- the situation in Europe
- conditions that foster continuity of training paths

5.1 Continuity of training paths in Québec

The *Ministère de l'Éducation, du Loisir et du Sport* has implemented means of facilitating continuity of training paths in Québec. They mainly relate to a skills-based approach to developing programs of study and the harmonization of programs of study to facilitate the transition between levels of education.

5.1.1 The skills-based approach to developing programs of study

Program of study development follows an approach based on the acquisition of skills. This is generally known as a skills-based approach. Designed to facilitate harmonization of programs and recognition of achievements, this approach "consists essentially of defining the skills inherent to the performance of an occupation and formulating objectives and standards for them within a program of study."[78]

Although all preparatory trade programs of study are developed through a skills-based approach, they take different forms depending on the level of education. Thus, technical programs of study offered at the college level are based on the skills needed to perform an occupation, which are then expressed in the form of objectives and standards. Vocational programs of study offered at the secondary level are broken down into training modules that each refer to the skills targeted by the program. The skills in question are defined in the form of elements that demonstrate the behaviour expected at the end of learning.

78. Québec, Ministère de l'Éducation, *Élaboration des programmes d'études techniques. Guide de conception et de production d'un programme* (Québec, Gouvernement du Québec, 2004) p. 5. (free translation).

5.1.2 Harmonization of programs of study

Harmonization of vocational and technical programs of study consists of establishing links and continuity between secondary and college-level programs of study. This may be in a single training sector or in different training sectors. Harmonization is intended to prevent overlapping training offerings, recognize acquired skills and foster diversity of training paths. Thus, harmonization contributes to establishing coherent training offerings and, in particular, ensuring that the professional tasks targeted by the programs of study are distinct. To this end, efforts to harmonize programs of study bring to light the skills common to several programs, with the same statement and either duplicating each other or being so similar that they are equivalent.

As an example, the vocational program for *Accounting* was designed and harmonized with the following technical programs of study: *Insurance and Financial Services Consulting*, *Accounting and management technology* and *Business administration*. Thus, students who complete the *Accounting* vocational program who wish to continue their education at the college level in the *Accounting and management technology* program may have up to ten courses recognized based on the skills they have acquired.

Harmonization of technical programs of study with university programs of study occurs through agreements—or the development of bridges—between colleges and universities to offer integrated programs of study known as DCS-BAC which lead to a college studies diploma in a field of technical training and a bachelor's degree through university training. These integrated programs enable students who wish to continue their training at university to have the equivalent of one year of university recognized, which enables them to earn a bachelor's degree within the same period as students who follow the typical path, i.e. registering at a university after earning a general training college studies diploma.

5.2 Situation in North America

In general, the continuity of training paths in North America is based on the implementation of bridges between programs of study via agreements between educational institutions. The following sections describe the situations in Ontario and Massachusetts.

5.2.1 Continuity of training paths in Ontario

In Ontario, vocational programs of study are developed through a skills-based approach. In effect, the program standards determined by the Ministry of Training, Colleges and Universities involve specific skills required for the performance of an occupation or a group of related occupations as an entry point to the labour market. The standards also include essential skills required to succeed personally and professionally. The specific and essential skills are expressed as an action verb with performance criteria defined to describe what is required to achieve the learning outcome.

The specific skills offer similarity between one and two-year programs and two to three-year programs within the same sector of activity, which facilitates harmonization through a common core curriculum. What differs are the professional functions involved, i.e. a technician's position vs. a

technologist and the taxonomic level of the skills statement. This makes it possible to distinguish between the degree of responsibility and independence held. As an example, the program of study leading to a Diploma in *Electrical engineering techniques*, which takes two years, prepares students to hold a position as a technician. At the entry point to the labour market, the individual will be capable of servicing, installing, checking, maintaining and repairing as well as analyzing and troubleshooting various circuits, hardware and electrical systems. The program of study leading to Diploma in *Electrical engineering technology* takes three years and prepares students to hold a position as a technologist. In addition to the skills mastered by the technician, the student will be capable of designing various circuits, hardware and electrical systems.

There are also bridges between college-level and university programs of study. Note that the Port Hope Accord of 1999 served as the basis for developing 221 agreements between colleges of applied arts and technology and universities. The agreements enable graduates to have equivalencies recognized where the course content within a college of applied arts and technology corresponds to the course content of the selected university program of study.

5.2.2 Continuity of training paths in Massachusetts

In Massachusetts, continuity of training paths is a requirement the community and state colleges must respect when developing new programs of study. Moreover, continuity is a pre-condition of acceptance by the Massachusetts Board of Higher Education for new programs. Among other things, continuity of training paths serves as a performance indicator in the *Performance Accountability System* used to assess the performance of post-secondary educational institutions. In this American state, then, continuity of training paths is an important element of managing training offerings.

Thus, continuity of training paths occurs through the implementation of bridges designed to prevent overlapping education and reduce the period of study thereby facilitating progress. Bridges result from agreements between educational institutions. They enable students to have course credits from certain programs of study recognized or to gain priority admission to a specific program of study. Implementation of such bridges assumes the harmonization of programs of study in terms of managing training offerings between the educational institutions covered by an agreement.

Note the example of the *Tech Prep West* association, which brings together three community colleges and 28 high schools in Massachusetts. The educational institutions involved in the association have reached an articulation agreement[79] to facilitate progress between levels of education. More specifically, the agreement in question seeks to foster continuity between secondary-level vocational training, under the *Tech Prep* programs, and vocational training offered at the post-secondary level, which involves programs of study leading to a certificate or an associate degree. In other words, an articulation agreement enables students who have completed studies in a *Tech Prep* program to get priority admission to a program of study leading to a certificate or an associate degree and to have certain courses recognized.

79. According to the Grand dictionnaire terminologique of the Office québécois de la langue française <www.oqlf.gouv.qc.ca>, the term articulation is defined as follows: “Structures linking levels and programmes of education or education with employment and allowing movement between programmes at the same level or between education and employment.”

5.3 Situation in Europe

In Europe, continuity of education paths tends to be realized through the development and implementation of a vocational training system that allows the transfer of skills rather than the recognition of credits acquired via courses within a program of study. This is despite the fact that bridges based on course recognition also exist between the levels of education.

Thus, the credit, marking mastery of skills independent of the place or mode of acquisition, becomes the common denominator for assessing and comparing the skills acquired through education or the workplace. The implementation of such a system necessitates that training programs be developed via the skills-based approach and involve training blocks recognized separately. To review this situation in Europe, the next sections deal with continuity of training paths in England, France and Lithuania.

5.3.1 Continuity of training paths in England

In April 2004, the Qualifications and Curriculum Authority (QCA)[80] published a document that proposed a model for designing a transfer system of capitalizable credits for vocational training. Known as the *Framework for Achievement* (FfA), this model proposes orientations aimed at facilitating continuity of training paths and movement from one program of study to another or from one school to another. In the fall of 2004, the QCA began public hearings related to the proposed model. In January and February 2005, it conducted regional hearings. As a result of these hearings, a white paper will be issued in 2005. It is expected that the FfA will be implemented in January 2006.

The *Framework for Achievement* will enable individuals to gain official recognition of completing a training block just as with completion of a program of study. Resulting in the awarding of credits, training blocks specify the skills to be mastered. However, they do not specify how, where or when they must be acquired. In effect, a training block describes skills as part or all of a learning set to be achieved through a program of study, a course, a training activity or the holding of a job. Within this system, the concept of a credit will serve as a common denominator for recognizing, assessing, evaluating and comparing the skills acquired through education or in the workplace.

Currently, although credits are used by different organizations for the same purpose, there is no single system for the entire United Kingdom. This single system will be implemented from the existing *National Qualification Framework* (NQF). It will be adjusted in accordance with the *Scottish Credit and Qualifications Framework* (SCQF) and the *Higher Education Credit Principles* to make it possible to ratify specific agreements between systems in order to ensure credits are transferred and progress between levels of education continues. In addition, in accordance with the Copenhagen Declaration adopted November 30, 2002, the implementation of this single system is necessary to ensure compatibility between the British system and those in use in other member countries of the European Union.

80. The Qualifications and Curriculum Authority is a Regulatory Authority, a body designated by Parliament to define and enforce national standards related to occupational qualifications.

The principles underlying program of study design facilitate the implementation of a system to ensure continuity of training paths and the construction of bridges between different training paths. Study programs offered in England are developed from independent training blocks that concern a set of skills to be acquired and they can be arranged in different ways. To this end, there is a databank cataloguing all the training blocks available. For each one, the following data is provided: the title and code of the training block, the skills and requirements targeted and the level of education and number of credits associated with it. Consequently, program of study development works from the available training blocks in the databank which are developed by the Awarding Bodies.[81] This is why earning professional credentials is accomplished by accumulating a certain number of credits according to rules of combination defined for each training program.

The rules of combination[82] determine the requirements for earning professional credentials in terms of training blocks to be completed. For each program of study leading to an occupation defined in the *National Occupational Standards*, the rules specify how training is organized by indicating the mandatory and optional training blocks and the number of complementary training blocks students may choose from as they wish. Parameters for selecting complementary training blocks may also be included in the rules of combination, in particular the skill level and duration in hours of the blocks. The rules of combination are defined by the Awarding Bodies in accordance with the *Sector Qualification Strategy* which determines the current and future skills required to perform an occupation or a group of related occupations. Note that the *Sector Qualification Strategy* is developed by the Sectors Skills Councils.[83]

Finally, in terms of developing the professional qualification process, the sharing of responsibilities among various authorities also facilitates continuity of training paths. In effect, the Awarding Bodies are responsible for developing training blocks and programs of study as well as evaluating and recognizing mastery of skills covered by the training blocks. Educational institutions, employers, community organizations and prisons are responsible for offering training programs developed by the Awarding Bodies. In terms of training offerings, evaluation of skills and accreditation of studies, these are handled by different agencies and students are not obligated to follow all the courses of a training program through a single educational institution. As a result, students can accumulate credits through different institutions as suits their needs.

5.3.2 Continuity of training paths in France

In September 2001, the *Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche* undertook a reform of programs of study leading to a *certificat d'aptitudes professionnelles* (CAP). The goal was to ensure programs would be developed based on the specific skills necessary to perform an occupation as well as general skills for understanding the world and citizenship. Accordingly, programs of study leading to a CAP are now broken down into independent training blocks recognized by credits. For students who have completed a program

81. The Awarding Bodies are agencies recognized by the Regulatory Authorities mandated to award approved professional credentials.

82. Note that the rules of combination were set to be defined in 2005.

83. The Sectors Skills Councils are independent bodies approved by the Secretary of State for Education and Skills. They bring together representatives of employers within a sector of economic activity seeking to understand the current stakes of their sector in order to implement means to plan and upgrade human resources capacities.

leading to a CAP, earning appropriate professional credentials involves demonstrating mastery of a set of skills through training blocks related to a specific occupation. To do this, students must take a comprehensive exam with specific testing on each of the program's separately recognized training blocks.

Reforms to programs of study leading to a CAP took place in the midst of reforms to programs leading to the *baccalauréat professionnel* (Bac pro), the *brevet professionnel* (BP) and the *brevet de technicien supérieur* (BTS), which are also organized in training blocks covering a coherent set of knowledge and skills to be acquired and mastered. This makes it possible to diversify the training modes, facilitate recognition of achievements and promote continuity of training paths.

Thus, the programs of study offered in France come under training reference systems. They involve general training blocks common to all programs of study leading to a diploma at the same level of qualification and training blocks specific to certain fields of economic activity or certain specific occupations. There may be common training blocks concerning specific professional activities under multiple programs of study that lead to a diploma at the same level of qualification so students who have completed a program of study and wish to register for another program leading to a diploma at the same level of qualification can have the skills they acquired in the first program recognized under the second.

In addition, in 2003, the *Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche* invited all secondary schools with vocational training programs—i.e. the *lycées professionnels* and the *lycées polyvalents* that offer vocational and general training programs—to become *lycées des métiers*. Just what are these *lycées des métiers*?

They are specialized educational institutions for students in the vocational streams heading for occupations within a related group such as construction, hotel management and marine trades, for example. They offer training programs leading to various vocational diplomas including at level V *certificat d'aptitudes professionnelles* (CAP) and the *brevet d'études professionnelles* (BEP), at level IV the Bac pro and the *baccalauréat technologique* (Bac techno), and at level III the *brevet de technicien supérieur* (BTS). The *lycées des métiers* foster continuing studies through better linking of the various levels of vocational programs of study and facilitate movement from one training mode to another, i.e. from apprenticeship in the workplace to in-school training. In effect, the concentration of training offerings within a sector of activity enables the educational institution to diversify the training modes and offer customized courses of study.

In accordance with the reforms to training programs and the creation of the *lycées des métiers*, the Ministry planned certain measures for the start of the 2003 school year related to adapting the duration of vocational training programs to facilitate continuity of training paths and movement between the various levels of vocational training paths.

Initially, the Ministry proposed a training program leading to a Bac pro in metallurgy to be accessible immediately after the third year of lower secondary-level education and requiring three years to complete.[84] This would reduce the training period since the typical path post the third year

84. In France, secondary education has two levels. The lower secondary level involves courses from grade 6 to the 3rd year and is recognized by the *brevet*. After the 3rd year, which corresponds to the ninth year of education, students have the choice of attending a *lycée professionnel* or a *lycée polyvalent*. The *lycée professionnel* offers two-year vocational

of the lower secondary level would take four years, with two in a training program leading to a BEP and another two in a training program leading to a Bac pro. The option of three-year training programs leading to a Bac pro will be expanded to other sectors in which most students who continue their studies have earned the BEP.

The Ministry then asked the *lycées des métiers* to build bridges between the various levels of vocational training programs. The underlying principle of bridging different levels of vocational training is that, although the primary goal of vocational training is employment, continuing one's studies should be possible to ensure these programs do not lead to dead ends. The option of adapted paths focusing on general training is essential to promoting successful movement from one level of vocational training to another. Thus, for example, to facilitate student movement from a level V vocational training program to a level IV program, educational institutions must plan training programs adapted to their specific needs. Students with a BEP who wish to register in a training program leading to a Bac techno must thus enter an adaptation class in the first year rather than the second and the institution must offer a program adapted to the individual student's profile. After successfully completing the first-year courses, such students will move on to the final year with other students who have followed the usual path. The option of an adapted path enables the student to earn a BEP and a Bac techno in four years rather than five. Note that this student is still penalized since students who follow the usual path earn a Bac techno in three years. Finally, note that, after earning a Bac pro, students can also continue their studies in a program leading to a BTS and the educational institution will adapt the first year of the program to their needs.

5.3.3 Continuity of training paths in Lithuania

Lithuania, which joined the European Union in 2004, must respect the recommendations of the Copenhagen Declaration in terms of measures aimed at facilitating continuity of training paths and ensuring recognition of the professional credentials it awards by the other member countries of the European Union. Thus, as noted for England and France, Lithuania is in the process of defining its programs of study in training blocks corresponding to a coherent set of skills recognized by credits that can be earned separately.

To give concrete follow-up to the avenues of action proposed in the *White Paper on Vocational Education and Training in the Republic of Lithuania* in 1999, programs of study will be reorganized into training blocks in order to foster harmonization of secondary and post-secondary vocational programs of study, thus facilitating continuity of training paths. In effect, the courses offered by Vocational Schools and colleges would be coordinated to permit recognition of credits so that students who register in a program of study at a college after completing a level 3 or 4 vocational training program can have certain credits recognized, thus shortening the study period.

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training programs resulting in a CAP or BEP. Students have thus accumulated 11 years of education. After earning these two diplomas, students can continue on to studies toward a Bac pro, which is offered at a *lycée professionnel*, or join the workforce. As for the *lycée polyvalent*, it offers general training and vocational training programs. The three-year general training programs lead to a *baccalauréat général*, while the vocational training programs, also three years, lead to the Bac techno or the *brevet de technicien* (BT). The *baccalauréat général* and the Bac techno prepare students for further studies while the BT prepares them to join the workforce.

The *Law on Higher Education* provides that the harmonization of post-secondary and university-level programs of study is expected to occur through agreements between colleges and universities. Such agreements would see recognition of credits acquired through programs of study in the same specialty to prevent overlapping and reduce the study period. However, for graduates of colleges, as of 2005 it was still not possible to continue on to university studies through continuity of training measures.

5.4 Conditions that foster continuity of training paths

To ensure continuity of training paths, the member countries of the European Union are progressively leaning toward setting up a system that targets continuity through skills acquisition via the use of a common denominator, the credit, to assess and compare skills acquired through education or in the workplace. The European approach is in response to the recommendations of the Copenhagen Declaration adopted November 30, 2002 by the Ministers of Education of 31 European countries and by the European Commission. In effect, the Copenhagen Declaration recommends the development of a "common currency" for recognizing professional credentials to facilitate cross-border mobility of human resources and life-long vocational training.

Implementation of a such a system depends on the presence of certain conditions. They relate to the use of a common evaluation reference system for training through the education system and training in the workplace, mutual recognition of credits awarded by various training organizations and the implementation of a quality control system for training programs.

In addition, documents that provide baselines for developing training programs provided through the education system or in the workplace must include parameters for evaluating and recognizing skills. Moreover, the world of education and the world of work must share a common evaluation reference system. The use of a single reference system makes it possible to assess and evaluate mastery of skills regardless of the mode or place of acquisition. In France, the evaluation reference system accompanies the occupational activity reference system. It presents the knowledge a qualified individual at the entry point to the labour market must have and defines the evaluation indicators corresponding to the level of performance at which mastery of skills is recognized. In Lithuania, the evaluation reference system is appended to the training reference system. It defines the requirements for final evaluation leading to the awarding of professional credentials. It also specifies the form and duration of the final exam along with the evaluation criteria.

The possibility of official recognition of the completion of a training block, as with a full program of study and of accumulating and transferring credits to earn professional credentials assumes the mutual recognition of credits awarded by various training organizations. Mutual recognition necessarily obligates organizations that offer programs of study to trust the quality of the training offered by other organizations. Accordingly, the mutual recognition of skills goes hand in hand with the implementation of a quality control program for programs of study and the organizations that offer them to ensure programs and training modes are comparable. Such a system must specify the criteria and indicators used to evaluate the quality of training programs and include measures to enforce observance.

6 Program of study development: comparison of situations observed in the jurisdictions examined

This chapter presents the situations in various jurisdictions in terms of the sharing of responsibilities among authorities involved in program of study development. It deals with the following five themes:

- the development process for technical programs of study offered by Québec's college educational institutions
- the development process for vocational programs of study offered by Ontario's colleges of applied arts and technology
- the development process for vocational programs of study offered by Massachusetts's community colleges and state colleges
- the development process for vocational programs of study offered by Lithuania's colleges
- the principal characteristics of the development process for programs of study implemented in the educational systems examined

6.1 Development process for technical programs of study offered by Québec's college educational institutions

The following sections deal with the development process for technical programs of study offered by Québec's college educational institutions, i.e. the *CEGEPs* and similar institutions. The process is broken down into three aspects, i.e.: the components of technical programs of study in Québec, the sharing of responsibilities for development of technical programs of study between the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) and the *CEGEPs*, and the evaluation of programs of study.

6.1.1 Components of technical programs of study in Québec

Technical programs offered in Québec involve four training components, i.e. general training common to all programs, general training specific to each program, general complementary training and specific training (refer to Table 6.1). Overall, general training represents about a third of the training provided under technical programs of study.

The general training component common to all programs represents from 18.12% to 23.25% of the credits in programs of study offered through college-level education and relates to the language of instruction and literature, philosophy or the humanities, physical education and second language courses.[85] The existence of a general training component is intended to promote continued basic training following secondary studies and the acquisition of essential study and citizenship skills.

85. A credit corresponds to 45 hours of learning activities.

The general training component specific to each technical program of study represents from 6.55% to 8.37% of the credits under the program in question. It relates to the language of instruction and literature, philosophy or the humanities and second language courses.

The complementary general training component represents from 4.37% to 5.58% of the credits under technical programs of study. It is intended to enable students to gain familiarity with fields of knowledge that differ from those covered by the specific component of the program in question.

As for the specific training component, it represents from 62.80% to 70.96% of the credits under technical programs of study. The goal of specific training is to enable students to acquire specific skills related to performing the occupation covered by the program of study in question.

Table 6.1 Breakdown of the components of technical programs of study offered by Québec's *CEGEPs*

Training components	Number of credits			% of program		
Common general training	16.66		16.66	18.12	to	23.25
General training specific to program	6.00		6.00	6.55	to	8.37
Complementary general training	4.00		4.00	4.37	to	5.58
Specific training	45.00	to	65.00	62.80	to	70.96
Total	**71.66**	**to**	**91.66**	**100.00**		**100.00**

Source: Québec. Ministère de l'Éducation., Direction de l'enseignement collégial, Service des programmes et des affaires étudiantes *Les prescriptions ministérielles et l'élaboration locale d'un programme défini en objectifs et standards* (Québec: Gouvernement du Québec, 2000) p. 4. (free translation.)

6.1.2 The sharing of responsibilities for development of technical programs of study between the *Ministère de l'Éducation, du Loisir et du Sport* and the college educational institutions

In Québec, responsibility for developing and implementing technical programs of study is shared by the *Ministère de l'Éducation, du Loisir et du Sport* and the *CEGEPs*. In effect, the Ministry is responsible for defining the priorities of program development[86] through a process of collecting labour market data to determine needs for human resources training. It is also responsible for defining the objectives and standards[87] associated with the three general training components and the specific training component for each program of study leading to a Diploma of College Studies (DCS). In addition, the Ministry may determine some or all of the learning activities used to achieve the objectives and standards of the common general training component. As for the *CEGEPs*, they are responsible for developing and implementing specific learning activities to foster the acquisition

86. Note that the *Comité national des programmes d'études professionnelles et techniques* (CNPEPT), composed of partners in the work world and education circles, is tasked with formulating opinions for the Ministry on the priorities of program development and the distribution of authorizations to offer specific programs regionally.

87. *Objectives* refer to skills, i.e. abilities and knowledge, to be acquired within a program of study. *Standards* concern the level of performance considered to be the threshold for recognizing that an *objective* has been achieved. *College Education Regulations*, c. C-29, r.5.1.1 (updated to November 9, 2004).

of skills related to the general training component and the specific training component for technical programs of study based on orientations set by the Ministry, in particular objectives and standards.[88]

Thus, the sharing of responsibilities by the *Ministère de l'Éducation, du Loisir et du Sport* and the *CEGEPs* in terms of developing and implementing training results in the following:[89]

- to determine the priorities of developing technical programs of study, the *Ministère de l'Éducation, du Loisir et du Sport*, in conjunction with partners from socio-economic environments affected by the issue, conducts studies to profile training sectors and carry out preliminary reviews. These studies deal with current and future needs for skilled labour within an occupation or a group of related occupations or within a given sector of economic activity. They are then submitted for validation by a working group composed of labour market and education representatives.
- once qualitative and quantitative needs have been determined for a given occupation or group of related occupations, the *Ministère de l'Éducation, du Loisir et du* Sport conducts a study to more accurately profile the occupation or group of occupations in question. This involves defining the occupational activity reference system. Accordingly, analysis of the situation focuses on describing the responsibilities, tasks and activities of the occupation, the conditions of work, the skills and knowledge required, helpful attitudes and behaviours and the expected evolution of the occupation.
- working from the situation analysis, the *Ministère de l'Éducation, du Loisir et du Sport* produces a training project for which it defines the goals and objectives of the technical program of study it intends to update or revise and determines the skills to be facilitated. The project is analyzed by labour market partners to assess its relevance in terms of performing the occupation and by educational partners to assess its consistency, pedagogical and material feasibility and harmonization.
- following this broad validation process, the *Ministère de l'Éducation, du Loisir et du Sport* defines the training reference system. Québec is unusual in this area. In effect, in the process of developing a technical program of study, no distinction is made between the occupational activity reference system, i.e. the skills necessary to perform a given occupation or a group of related occupations, and the training reference system, i.e. the objectives and standards of the program. As a result, it is difficult to determine what is specific to one or the other. Thus, in accordance with the conditions set in the *College Education Regulations*, the Ministry defines the objectives and standards for each element of the common general training component and all or some of the learning activities used to achieve them.[90] It also determines the objectives and standards of the elements of the program-specific general training component, the complementary general training component and the component specific to the technical program study in question.
- under the conditions set in the *College Education Regulations* and in accordance with the objectives and standards determined by the Ministry for the four components of the program, the *CEGEP* design learning activities focusing on mastery of targeted skills,

88. As an indicator, note that *CEGEPs* are also responsible for developing programs of study that lead to an attestation of college studies (ACS).

89. On this subject, refer to the following document: Québec. Ministère de l'Éducation, *La formation professionnelle et technique au Québec. Un système intégrant l'ingénierie de gestion et l'ingénierie de formation* (Québec: Gouvernement du Québec, 2002)

90. *College Education Regulations*, c. C-29, r.5.1.1 (updated November 9, 2004).

define the number and duration and select the most appropriate training mode, such as theoretical or practical courses and on-the-job apprenticeships, according to the number of credits and contact hours[91] determined by the Ministry. To implement the technical program of study, the *CEGEP* must also plan the course organization on a semester basis, develop course content, refine pedagogical instruments and prepare a comprehensive testing mechanism to evaluate mastery of the program skills.

6.1.3 Evaluation of programs of study

Since 1993, the *Commission d'évaluation de l'enseignement collégial du Québec* has been responsible for evaluating the implementation at each *CEGEP* of programs of study leading to a DCS, for which objectives and standards are defined by the Ministry, along with the implementation of programs leading to an attestation of college studies (ACS), for which the objectives and standards are defined by the *CEGEP*. The evaluation of programs of study is intended to ensure they are relevant in terms of skills and knowledge acquired by graduating students. It also focuses on ensuring the quality of the pedagogy and supervision, the coherence of the program and the skills and dynamism of the teaching staff. Finally, it aims to ensure programs adequately respond to the needs of the labour market.

Evaluation of programs involves a self-evaluation process by *CEGEPs*. To orient the self-evaluation process, the commission makes a guide available to *CEGEPs*. It sets out the basic data required, the evaluation criteria and the standards on which the commission's assessment will be based. *CEGEPs* use the guide to evaluate each program targeted and then submit a report to the commission. With the information from the self-evaluation report and a visit to the *CEGEP*, the commission prepares a report that is then submitted to both the *CEGEP* and the Ministry.

In its report, the *Commission d'évaluation de l'enseignement collégial du Québec* brings out the strengths and weaknesses of the program as offered and then formulates recommendations to improve the situation. If the commission feels that program implementation does not meet the minimum quality guarantees appropriate to college education, it can recommend that the Ministry withdraw its authorization allowing the *CEGEP* to offer the program.

6.2 Development process for vocational programs of study offered by Ontario's colleges of applied arts and technology

This section describes the process of developing vocational programs of study offered by Ontario's Colleges of Applied Arts and Technology (CAATs). It is oriented around the following elements: the components of vocational programs in Ontario, the sharing of responsibilities for the development of vocational programs of study between the Ministry of Training, Colleges and Universities (MTCU) and CAATs, and the evaluation of programs of study.

91. A contact-hour is a unit for measuring the time spent by a student under the supervision of an educator.

6.2.1 Components of vocational programs of study in Ontario

The vocational programs of study offered in Ontario involve the following three training components: vocational training, general aptitudes and general training. Vocational training is specific to each program of study and focuses on acquiring the skills required to perform a given occupation. General aptitudes cover the acquisition of so-called essential skills. Note that there is a list of general aptitudes common to all one-year programs study and another list for all two and three-year programs of study. Finally, each program of study must include at least one general training course of three hours per week or about 45 hours per semester, representing about 15% of the program of study credits. General training concerns the following fields: esthetics, citizenship, culture, personal growth, social development, science, technology and the workplace.

6.2.2 The sharing of responsibilities for development of vocational programs of study between the Ministry of Training, Colleges and Universities and the Colleges of Applied Arts and Technology

In Ontario, Colleges of Applied Arts and Technology are responsible for proposing training appropriate to their strategic orientation and the needs of the community they serve. Requests to develop, revise or withdraw a program of study are formulated by advisory committees that bring together employers, students, graduates and representatives of the CAAT. The requests are then submitted to the CAAT's board of directors, which conducts a feasibility study to evaluate labour market needs related to the proposed program and demand expressed by secondary level students.

Responsibilities for program of study development are shared by the Colleges of Applied Arts and Technology and the Ministry of Training, Colleges and Universities. In effect, defining program standards is the task of the Ministry, which works with representatives of business and professional associations affected by the matter and with specialists in the field targeted by the program of study. Program standards catalogue specific skills and essential skills described in the form of objectives and standards.

As for the Colleges of Applied Arts and Technology, they are responsible for program development for all training components, including the general training component. As a result, they must determine the program's structure, training modes, disciplines and learning activities required to achieve the program objectives in accordance with the standards set by the Ministry. Note that if there are no program standards for a given program, the CAAT must define them. The CAAT must also respect the requirements of program development defined in the *Credentials Framework* concerning the proportions of the different training components, the study period, the conditions of admission to the program and the accreditation of studies. Note that CAATs are free to determine locally what is appropriate to include in terms of general training for one-year programs of study leading to a certificate. However, for two and three-year programs of study, CAATs must comply with more specific requirements since each program must include three to five general training courses developed in accordance with the general goals and objectives defined by the Ministry.

Note that there are two processes to approve vocational programs of study offered by the colleges of applied arts and technology. One concerns programs of study leading to a certificate, diploma or *post diploma*, while the other covers programs of study that leading to an applied degree. Programs

of study leading to a certificate, a diploma or a *post diploma* are subject to the general framework of credentials awarded by CAATs and are examined by the Credentials Validation Service, which is responsible for approving new programs of study.

As for programs of study leading to an applied degree, they are subject to examination by the Post-secondary Education Quality Assessment Board, which makes a recommendation to the Ministry of Training, Colleges and Universities on whether or not to approve the proposed program of study. The Ministry then informs the CAATs of its decision on the program of study.

Finally, programs of study implementation is the task of the CAATs, which are responsible for planning course organization by semester and developing course content. To this end, the team conducts research via Ontario's other colleges and, if necessary, colleges in other Canadian provinces to collect data useful in developing courses.

6.2.3 Evaluation of programs of study

In Ontario, there are no provincial policies governing the evaluation and review of programs of study offered by colleges of applied arts and technology. As a result, maintaining the quality and relevance of programs of study is the responsibility of each CAAT, which must adopt a policy on evaluating the programs of study it offers.

6.3 Development process for vocational programs of study offered by Massachusetts's community colleges and state colleges

The development process for vocational programs of study offered by Massachusetts's community colleges and state colleges is described according to the following points: the components of Massachusetts' vocational programs of study, the sharing of responsibilities related to the development of vocational programs of study by the affected authorities and the evaluation of programs of study.

6.3.1 Components of vocational programs of study in Massachusetts

In Massachusetts, the proportion of general training under given vocational programs of study varies depending on the final goal. In effect, it depends on whether the program of study is intended to prepare the student for employment at the entry point to the labour market, for a position as a technician or for university studies.

Accordingly, programs of study that lead to a certificate and thus take less than two years to prepare students to access the labour market are composed only of core courses and do not include any general training courses. By comparison, programs of study that lead to an Associate in Applied Science Degree, taking two years to prepare students for a position as a technician, include 60 or more credits, including at least 16 credits of general training. Similarly, programs of study that lead to an Associate in Science Degree, also a two-year program that prepares students for a technician's position or for further studies in a program leading to a bachelor's degree in the same field, include

60 or more credits with at least 20 credits of general training. The general training offered under these two types of programs relates to the humanities such as languages and literature, philosophy, history, the arts, natural sciences, mathematics and social sciences.

6.3.2 The sharing of responsibilities for development of vocational programs of study among the authorities involved

In Massachusetts, managing training offerings is the responsibility of the community and state colleges. Accordingly, the board of trustees of each college collects information on qualitative and quantitative training needs within a sector or economic activity or for a given occupation. When a college concludes there is a need for training, it develops a vocational program plan.

Program development is thus a responsibility of the colleges. Note that there is no common training reference system for programs of study offered in Massachusetts. As a result, colleges must define their own training reference systems, i.e. the goals and general objectives of each program of study and the skills targeted. To do this, the college's board consults partners in socio-economic circles, particularly in the businesses affected, to accurately determine what is involved in performing the occupation targeted by the program. The college then determines the program structure, the training modes, the disciplines and the learning activities, in accordance with the requirements of the Massachusetts Board of Higher Education, concerning in particular the minimum number of credits, the proportion of general training to specific training and the admission criteria.

Approval of new programs of study is the responsibility of the Massachusetts Board of Higher Education. Using information provided by the community college or state college seeking approval, the Massachusetts Board of Higher Education must verify that there is a need for the program and ensure that the proposed plan will indeed achieve the training objectives. Approval awarded by the Massachusetts Board of Higher Education for new programs of study authorizes only the college that sought the approval to offer the program. Thus, colleges that wish to implement a program already offered by another institution must develop their own program of study projectplan and submit it to the Massachusetts Board of Higher Education.

Finally, note that national professional associations have their own systems for approving programs of study proposed by community colleges and state college. Although approval by these associations is not necessary, colleges can nonetheless turn to them to ensure the programs of study they propose correspond to the specific requirements of the target occupations.

6.3.3 Evaluation of programs of study

In Massachusetts, responsibility for evaluating programs of study is shared by the community colleges and state colleges and the Massachusetts Board of Higher Education. In effect, the colleges must ensure the quality and relevance of the programs of study they offer by developing their own evaluation policy. As an example, under the statutes of Springfield Technical Community College, responsibility for ensuring the quality and relevance of programs of study is delegated to the Academic Services Committee, which regularly reviews, upgrades and updates the college's programs of study based on recommendations from a sub-committee that evaluates program quality.

The Massachusetts Board of Higher Education periodically evaluates all programs of study within a training sector at all public post-secondary educational institutions. The goal of such a comprehensive review is to evaluate the quality of programs of study and determine the degree to which they are filling human resources needs in the targeted sector of economic activity. The resulting evaluation enables the Massachusetts Board of Higher Education to define measures toward better matching training offerings and associated labour market needs.

6.4 Development process for vocational programs of study offered by Lithuania's colleges

This section describes the components of vocational programs of study offered by Lithuania's colleges, the sharing of responsibilities for developing vocational programs of study by the Ministry of Education and Science and the colleges and the evaluation of programs of study.

6.4.1 Components of vocational programs of study in Lithuania

Vocational programs of study offered in Lithuania combine a general training component and a training component related to the occupation in question. The general training concerns the language of instruction, i.e. Lithuanian, humanities and social sciences, natural sciences, mathematics, computer sciences and European languages. In terms of training related to the occupation targeted by the program, note that at least one third of the program credits are devoted to practical training and workplace practicums.

6.4.2 The sharing of responsibilities for development of vocational programs of study between the Ministry of Education and Science and the colleges

In Lithuania, management of training offerings is shared by the colleges and the Ministry of Education and Science. The colleges are responsible for evaluating needs occasioned by the economic, social and cultural development of the communities they serve and for proposing the development of new programs of study to the Ministry. The Ministry, in turn, evaluates the relevance of each new program of study proposed by the colleges before deciding whether to approve it

Responsibilities for program development are also shared by the colleges and the Ministry of Education and Science. The Ministry defines national standards for the development of programs leading to a state diploma. To this end, the Methodological Centre for Vocational Education and Training, an institution established by the Ministry, is responsible for supervising the development of *Vocational Education and Training Standards*, in effect the training reference system. The associated skills and requirements are thus grouped into coherent training blocks subject to the *Vocational Education and Training Standards*. The Centre for Quality Assessment in Higher Education is responsible for preparing *Guidelines for a Subject Area*, which set out orientations for each program concerning admission requirements, the period of study, the number of hours

allocated to the general training component in relation to the specific training and a list of mandatory common disciplines.

The colleges work with partners in affected socio-economic circles to take on local development of programs of study. The development of a program of study for a given occupation occurs through appropriate training blocks to which the college can add training blocks on skills not covered by the existing training reference system to better meet the needs of the community they serve. The college is also responsible for determining suitable learning activities to achieve the skill results targeted and meet the performance requirements of the occupation as set out in the evaluation reference system appended to the training reference system.

Note that the Centre for Quality Assessment in Higher Education is the body responsible for determining whether a program of study proposed by a college is relevant in terms of the training objectives. The Centre also evaluates the college's capacity to offer the new program and the need to create it, focusing on whether the proposed program is sufficiently different from other programs already offered in the same sector of economic activity. Working from information collected through the evaluation of the new program of study, the Centre for Quality Assessment in Higher Education makes a recommendation to the Ministry on whether or not to approve the program. If it is approved, the new program will be added to the *Register of Study and Training Programmes.*

Finally, programs of study implementation is the responsibility of the colleges. Once a new program of study has been approved, the colleges assumes responsibility for planning and organizing courses by semester and developing course content.

6.4.3 Evaluation of programs of study

In Lithuania, evaluation of vocational programs of study offered at the post-secondary level focuses on ensuring quality. Under the aegis of an external organization, the Centre for Quality Assessment in Higher Education, it is based on legally established quality criteria approved by the government of the Republic of Lithuania and the Ministry of Education and Science.[92]

There are two types of program of study evaluations: partial or complete. A partial evaluation verifies whether the program complies with program of study requirements as approved by the Ministry. It deals with the following: the title of the program study, the awarding of accreditation, the study period, the mandatory and optional courses including the number of associated credits, the skills of the teaching staff and a description of educational materials and services made available to students.

Where the partial evaluation shows that the program is not meeting the quality criteria defined for post-secondary programs, the Centre for Quality Assessment in Higher Education will undertake a complete evaluation of the program of study in the year following submission of the partial evaluation report. The complete evaluation deals with the following: the description and content of the program courses and their logical evolution, a description of learning evaluation instruments, the number of students registered and the placement rate for graduates and evaluation of the program of

92. Note that the evaluation of vocational programs of study offered at the secondary level is a responsibility of the Methodological Centre for Vocational Education and Training.

study by graduates and employers. The purpose of the complete evaluation is to bring to light the strengths and weaknesses of the program in question, any shortfalls between what the program should be as prescribed and what is actually offered and the causes of such shortfalls. The evaluation report must also propose paths for action to improve the situation. After it receives the external evaluation report, the college must develop a plan to implement the recommendations of the evaluating experts and submit it within three months to the Centre for Quality Assessment in Higher Education.

6.5 Principal characteristics of the program development process implemented in the education systems examined

Comparison of the situations observed in various jurisdictions with regard to program of study development shows that all vocational programs of study offered at the post-secondary level—the technical programs of study offered at the college level in Québec—include a general training component. Essentially, the disciplines targeted by general training relate to three major fields of knowledge beyond education in the language of instruction, i.e. classical humanities (arts, letters and philosophy), natural sciences, applied sciences and technology, and human and social sciences. The inclusion of a general training component in preparatory trade or vocational programs of study offered at the post-secondary level or at the college level is intended to train multi-skilled labour capable of adapting to the changing needs of the labour market.

In addition, comparison of the situations observed in various jurisdictions concerning program of study development reveals that a national consensus is generally reached as to the skills needed to perform an occupation or a group of related occupations or to hold employment in a given sector of economic activity. The skills involved are generally grouped into a occupational activity reference system used to develop a training reference system appropriate to the needs of the labour market. In other words, in all the education systems examined, with the exception of Massachusetts, standards are defined by government departments or related organizations on the skills to be acquired through preparatory trade or vocational programs of study within the education system and the standards must be respected when the programs are developed.[93]

The existence of various models for managing programs of study brings out the complexity of defining a occupational qualifications system that is both flexible and coherent. In effect, the sharing of responsibilities for the development of vocational programs of study offered at the post-secondary level—the technical programs of study offered at the college level in Québec—poses the problem of balancing the independence of the post-secondary or college educational institutions to enable them to quickly adapt their programs of study to community needs with control of the institutions' programs of study to ensure the credentials they award are equal in value.

93. In Massachusetts, the skills necessary to perform a given occupation or a group of related occupations are not determined on a state-wide basis. In effect, the community colleges and state colleges are responsible for determining the occupational activity reference system used to develop the training reference system appropriate to labour market needs. In doing this, the colleges must respect the needs for skilled labour expressed by partners in socio-economic circles and the requirements of the Massachusetts Board of Higher Education concerning the development of post-secondary vocational programs of study.

7 Evaluation of learning: comparison of situations observed in the jurisdictions examined

The seventh chapter of this report deals with the situation in various education systems concerning the evaluation of learning. Note that the learning evaluation process is closely linked to the occupational qualifications model it fits into. In other words, the conditions of evaluating students learning achieved through preparatory trade or vocational programs of study are based on the training reference system which in turn is based on the occupational activity reference system developed for an occupation or group of related occupations.

To present the situations in various education systems concerning the evaluation of learning, the first four sections of this chapter provide an initial overview of the occupational qualifications model supporting the evaluation. The learning evaluation process itself is then described. The fifth section presents the principal conclusions of analyzing the situation in the education systems examined. The sections in question concern:

- the evaluation of learning achieved in vocational training programs offered at the secondary level and in technical training programs offered at the college level in Québec
- the evaluation of learning achieved in vocational training programs in the education system and in the workplace in Ontario
- the evaluation of learning achieved in vocational training programs in the education system and in the workplace in Massachusetts
- the evaluation of learning achieved in vocational training programs offered at the secondary level and at the post-secondary level in Lithuania
- the principal characteristics of learning evaluation processes implemented in the education systems examined

7.1 Evaluation of learning achieved in vocational training programs offered at the secondary level and in technical training programs offered at the college level in Québec

In Québec, two distinct elements mark the occupational qualifications model: initial training offered through vocational training programs offered at the secondary level and technical training programs offered at the college level, and continuing training offered in the workplace. In fact, the *Ministère de l'Éducation, du Loisir et du Sport* (MELS), which is responsible for initial training, conducts its own studies in conjunction with labour market partners in order to establish occupational activity reference systems for occupations targeted by the training. For its part, *Emploi-Québec*, in conjunction with labour market partners including the human resources sectoral committees, is responsible for developing continuing training offerings in the workplace along with useful occupational activity reference systems. Thus, the learning evaluation process developed for initial training differs from that for continuing training.

However, in the coming lines, we will focus first on the evaluation of learning achieved by students taking initial training in secondary-level vocational programs of study. Secondly, we will look at the

process of evaluating learning achieved by students taking initial training in college-level technical programs of study.

7.1.1 Evaluation of learning achieved through secondary-level vocational training

In terms of vocational training, the *Ministère de l'Éducation, du Loisir et du Sport* is responsible for developing programs of study overall, from specifying the skills targeted to designing learning activities and evaluation, not to mention setting pedagogical goals, evaluation criteria, performance standards, the marking system and the procedures for recognizing completed studies. The development of the evaluation process thus comes under the *Ministère de l'Éducation, du Loisir et du Sport*. In effect, the Ministry "proposes indications of pedagogical content for each phase of skills acquisition and presents indicators and evaluation criteria accompanied by their respective weighting. In addition, it suggests evaluation strategies based on the instructional and summary approach combined with a description of the test and evaluation cards for each skill subject to practical testing."[94]

More specifically, in conjunction with various partners, the *Ministère de l'Éducation, du Loisir et du Sport* assumes responsibility for developing the process to evaluate learning achieved through vocational training. Accordingly, it calls on experts from the occupation targeted by the program to determine the criteria for evaluating mastery of skills and to determine the most appropriate strategies for evaluating each skill, with the strategies placing students in a context of performing the occupation they will hold in the labour market.[95] It also calls on management staff from the vocational training centre that offers the program to ensure there is a common understanding of the major orientations of learning evaluation. It also, and especially, works with the teaching staff responsible for implementing learning evaluation activities, assessing the acquisition of each skill based on pre-set criteria and performance standards, and assigning marks to students who get a "pass" or "fail" notation depending on whether the performance standard is achieved or not.[96] Finally, the Ministry works with businesses and companies that receive students in programs that alternate studies and work or students who participate in real-work training situations to specify the conditions required to verify whether students have met "performance or participation criteria determined under the program of study."[97]

At the end of the learning evaluation process, students who have mastered the set of skills targeted by the program earn a diploma granted by the *Ministère de l'Éducation, du Loisir et du Sport*, i.e. the Diploma of Vocational Studies (DVS) or the Attestation of Vocational Specialization (AVS).

94. Québec, Ministère de l'Éducation, *La formation professionnelle et technique au Québec. Un système intégrant l'ingénierie de gestion et l'ingénierie de formation* (Québec: Gouvernement du Québec, 2002) p. 61(free translation).
95. Québec, Ministère de l'Éducation, *Politique d'évaluation des apprentissages. Formation générale des jeunes, formation générale des adultes, formation professionnelle. Être évalué pour mieux apprendre* (Québec: Gouvernement du Québec, 2003) p. 65-66.
96. *Ibid.*, p. 65.
97. *Ibid.*, p. 61. (free translation).

7.1.2 Evaluation of learning achieved through college-level technical training

In terms of technical training, the *Ministère de l'Éducation, du Loisir et du Sport* is responsible for determining in conjunction with its partners the skills targeted by each program of study and the objectives and standards used to evaluate mastery of those skills. In turn, the "college educational institution (the *CEGEPs*) are responsible for developing the learning activities necessary to achieve mastery of the skills in question based on objectives and standards set by the Ministry."[98] Specifically, *CEGEPs* are responsible for planning and implementing learning activities, determining evaluation strategies and producing relevant learning and evaluation materials for the skills the students must acquire, among them "a comprehensive test evaluating mastery of learning from a perspective of awarding a diploma and with a description of the objectives, form, duration and other elements of the evaluation."[99]

In light of the preceding, it is clear that, in terms of learning evaluation, the *CEGEPs* have greater independence than the vocational training centres. This independence is set out in the legal framework governing college studies. Under the *College Education Regulations*, "a college shall, after consulting the *Commission des études*, adopt an institutional policy on program evaluation and shall ensure its implementation."[100] In addition, also under this regulation, "a college is responsible for having each teacher draw up, in compliance with the program, an outline for each course. The course outline shall contain the course objectives and content, the methodology, a bibliography, class participation requirements and evaluation procedures."[101] It is thus up to teaching staff to develop evaluation activities and the documents needed to do this, which assumes that there is no uniform testing to evaluate fulfillment of the objectives and standards set for the skills targeted by a program of study. However, the *Ministère de l'Éducation, du Loisir et du Sport* can impose uniform testing for any skills under the general training component of technical programs of study.

Finally, it is the Ministry that grants recognition of the completion of technical training studies, i.e. the Diploma of College Studies (DCS). This diploma is awarded to students who pass the *CEGEP*'s comprehensive test and demonstrate mastery of the set of skills covered by the program at the end of their studies, subject to recommendation by the *CEGEP*.

7.2 Evaluation of learning achieved in vocational training programs in the education system and in the workplace in Ontario

As in Québec, the occupational qualifications model in Ontario is characterized by the use of two occupational activity reference systems, one used to determine training offerings in colleges of applied arts and technology (CAATs) and the other to determine training offerings in the workplace. Thus, although they both come under the Ministry of Training, Colleges and Universities (MTCU), each of these training paths is based on its own training reference system and evaluation reference system. Accordingly, in Ontario, learning evaluation is two-pronged, with one process for learning achieved in the education system and another for learning achieved in the workplace.

98. Québec, Ministère de l'Éducation, *La formation professionnelle et technique au Québec*, *op. cit.*, p. 61. (free translation).
99. *Ibid.*, p. 61-62. (free translation).
100. *College Education Regulations*, c. C-29, r.5.1.1 (updated November 9, 2004).
101. *Ibid*.

7.2.1 Evaluation process for learning achieved in the education system

In Ontario, developing the process of evaluating learning achieved by students in post-secondary vocational programs of study is a responsibility of the Colleges of Applied Arts and Technology. In effect, while the Ministry of Training, Colleges and Universities—specifically the Postsecondary Education Division—determines policies and guidelines concerning program of study development through the adoption of program standards and defines mandatory educational goals, the CAATs must develop and implement the programs in question, which includes defining learning activities to foster the acquisition of the targeted skills and proposing an evaluation strategy to assess mastery of the skills.

Following the development of a program of study in accordance with standards set by the Ministry, the CAAT entrusts the teaching staff with the responsibility of specifying objectives, learning activities and the specific conditions of learning evaluation in a detailed plan for each course. To this end, note that teaching staff are also responsible for pedagogical planning and production of appropriate documents for the courses they offer, including evaluation instruments such as models for oral testing, objective testing and composition-type testing.

To conclude, note that it is the colleges of applied arts and technology that award credentials to students who successfully complete a program of study leading to a certificate, diploma or applied degree. In effect, students who meet the requirements of each course in a post-secondary vocational program, i.e. those who demonstrate mastery of the set of skills targeted by the program and pass the comprehensive test, if there is one, earn a diploma from the institution.

7.2.2 Evaluation process for learning achieved in the workplace

The development of the evaluation strategy for learning achieved by students in an apprenticeship program related to one of the 45 occupations subject to interprovincial recognition, also known as Red Seal trades,[102] is a responsibility assumed by the sector councils of Human Resources and Skills Development Canada (HRSDC). As for the evaluation of learning achieved by students in apprenticeship programs not related to occupations subject to the Interprovincial Standards (Red Seal) Program, this is handled by Ontario's sectoral committees. The Labour Market and Training Division of the Ministry of Training, Colleges and Universities manages the implementation of testing of student mastery of skills in apprenticeship programs and awards the appropriate Certificate of Qualification (C of Q).

More specifically, Ontario's sectoral committees determine the conditions of evaluating learning achieved in various programs related to Red Seal trades in accordance with the interprovincial standard. The standard is based on analysis of an occupation by sector councils and the Human Resources Partnership Directorate of Human Resources and Skills Development Canada, which is validated on a Canada-wide basis by occupational experts. As a result, the conditions of learning evaluation are similar for all of Canada's provinces and territories that offer apprenticeship

102. For more information on occupations subject to interprovincial recognition, refer to the Web site of the Interprovincial Standards (Red Seal) Program <www.red-seal.ca>.

programs concerning Red Seal trades. Thus, students in such programs must pass the interprovincial exam to earn the Certificate of Qualification granted by the Ministry of Training, Colleges and Universities, which bears a red seal.

The conditions of evaluation under apprenticeship programs not related to Red Seal trades are defined by Ontario's sectoral committees based on the occupational activity reference system they developed and the training reference system developed in conjunction with the Ministry of Training, Colleges and Universities. Thus, to earn the Certificate of Qualification (C of Q) granted by the Ministry, students in these apprenticeship programs must pass a test prepared by representatives of the sector of economic activity they will work in, i.e. members of the sectoral committees.

7.3 Evaluation of learning achieved in vocational training programs in the education system and in the workplace in Massachusetts

In Massachusetts, as in Québec and Ontario, the occupational qualifications model has two components with a occupational activity reference system specific to each: initial training and human resources training. Consequently, the process of evaluating learning achieved by students taking training in an educational setting differs from that for training in the workplace. These differences are outlined in the following paragraphs.

7.3.1 Evaluation of learning achieved in the education system

The development of the learning evaluation process for students in a post-secondary vocational training program is the responsibility of the board of trustees of the community college or state college that offers it.[103] When a program of study is developed, the college must define the skills graduates will have to have and propose general conditions for evaluating learning, i.e. the evaluation strategy used to verify student mastery of skills. However, the college's teaching staff is tasked with developing learning activities and determining the specific conditions of evaluation as well as producing appropriate learning and evaluation materials.

Thus, the conditions of evaluating student learning are determined at the time the community college or state college develops the program of study. In doing this, the college must respect the requirements of the Massachusetts Board of Higher Education, specifically in terms of comprehensive testing to verify mastery of the set of skills targeted by the program of study, the cumulative average reflecting minimum achievement of program objectives and the number of credits necessary to earn a diploma.

Finally, because they are responsible for developing vocational training programs and the general and specific conditions of learning evaluation, Massachusetts' colleges are also responsible for granting the appropriate accreditation of studies. This means that all diplomas associated with vocational programs of study at the post-secondary level are institutional diplomas.

103. Note that the development of secondary-level vocational training programs by vocational technical schools and the associated learning evaluation processes is the responsibility of the Massachusetts Department of Education. Note too that students who complete one of these programs earn a state diploma, the Certificate of Occupational Proficiency granted by the Massachusetts Department of Education.

7.3.2 Evaluation of learning achieved in the workplace

Evaluation of learning achieved by students in a pre-apprenticeship or apprenticeship program is the responsibility of the Massachusetts Department of Labor and Workforce Development. It shares this responsibility with the educational institution that offers the theoretical component of the training and with the employer that offers the practical component. More specifically, the occupational activity reference system defined by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development and its partners is used by the educational institution and the employer that receives the trainee to develop the training program and the related learning evaluation process.

The learning evaluation process for students in a pre-apprenticeship or apprenticeship program involves two distinct modes. The first consists of in-class testing under the supervision of the high school teaching staff for the pre-apprenticeship program or under the teaching staff of the vocational technical school or community college for the apprenticeship program. The purpose of the testing is to verify that the program's occupation-specific theoretical knowledge has been acquired. The second mode involves evaluation in real-work situations and is organized by the employer in conjunction with the individuals acting as program mentors. This testing is intended to verify mastery of practical skills inherent to the occupation in question.

Finally, students who successfully complete their studies in a pre-apprenticeship or apprenticeship program earn a state diploma, the Certificate of Completion of Pre-Apprenticeship or the Certificate of Completion of Apprenticeship. Both are awarded by the Division of Apprentice Training of the Massachusetts Department of Labor and Workforce Development.

7.4 Evaluation of learning achieved in vocational training programs offered at the secondary level and at the post-secondary level in Lithuania

Contrary to the situation in Québec, Ontario and Massachusetts, Lithuania's occupational qualifications model is based on the use of a single occupational activity reference system for each occupation. This assumes the use of a single reference in defining training paths in the education system and the workplace. Thus, the authorities responsible for providing training in the educational system and those responsible in the workplace use the same occupational activity reference system to develop their own training reference systems—vocational programs of study on the one hand and apprenticeship programs in the workplace on the other —, subsequently defining a common evaluation reference system.

Although Lithuania has developed an integrated occupational qualifications model that coherently links education and the workplace, the learning evaluation process differs depending on whether it has been developed for secondary-level vocational training or for post-secondary vocational training. However, for both secondary-level and post-secondary programs, the Ministry of Education and Science is responsible for defining the general principles and the conditions of the process as well as the roles of the various partners involved.

7.4.1 Evaluation of learning achieved through secondary-level vocational training

The learning evaluation process for secondary-level vocational training programs, in other words the training programs at levels 1 to 4, is defined in the *Law on Vocational and Education Training* of 1997 and in the *Procedure of Initial VET Qualification Exams* of 2003. Under these regulations, the Chambers of Commerce, Industry and Crafts and the Lithuanian Chamber of Agriculture are responsible for the evaluation of learning. More specifically, the Chambers are mainly responsible for developing the content of theoretical and practical exams in accordance with the evaluation reference system (Qualification Requirement) approved by the Ministry of Education and Science, keeping a copy of the examination protocol and designating the members of the Qualification Exam Commission for each program.

The Qualification Exam Commission is composed of at least three members with equal power, with one person to representing employers, one for employees and one member of the teaching staff in the occupation in question. The members of the commission are experts specializing in the occupation or training sector in question. The role of the commission is to organize and supervise the evaluation activities, measure student mastery of the skills targeted by the program, and assign grades. Note that the Chambers are responsible for developing the evaluation activities, i.e. the learning evaluation strategy for students in vocational training programs. The strategy has two parts, both distinct and complementary. The first part consists of written in-class testing. The goal is to assess the acquisition of the program's theoretical knowledge. The second part consists of practical testing in real or simulated work situations. Here students must execute one or more tasks to demonstrate mastery of the skills specific to the occupation targeted by the program.

7.4.2 Evaluation of learning achieved through post-secondary vocational training

The learning evaluation process for post-secondary vocational training programs is defined in the *Regulations of Non-University Studies Results Assessment* of 2002. Under these regulations, the development of the learning evaluation process for students in a post-secondary program is the responsibility of each of Lithuania's colleges. This involves a final thesis and, for certain programs, a final exam. To implement the evaluation process, the colleges designate members of the Qualification Exam Commission and develop the content of both the final thesis and the exam. The commission is composed of at least five members and at least half of them must be employer representatives. The role of the commission is to organize and supervise learning evaluation activities, verify the acquisition of program skills and assign grades to students.

Finally, students who successfully complete a post-secondary vocational program earn a Higher Education Diploma and professional credentials (Specific Qualification), both awarded by the college. Thus, when students demonstrate mastery of all skills covered by the program, they earn an institutional diploma and professional credentials determined by the Ministry of Education and Science.

7.5 Principal characteristics of learning evaluation processes implemented in the education systems examined

Discussion of the characteristics of the learning evaluation processes implemented in the education systems examined is oriented around two points, i.e. the development of general procedures for evaluating learning and the implementation of learning evaluation activities. In effect, in terms of the sharing of responsibilities among authorities for programs leading to a trade or an occupation offered in different education systems, it is appropriate to make a distinction between the development of the learning evaluation process and its implementation through evaluation activities.

7.5.1 Development of general procedures for evaluating learning

Often linked to the design and development of vocational programs of study offered at the post-secondary level—technical programs of study offered at the college level in Québec —, the development of general procedures for evaluating student learning involves defining the evaluation process and formulating the major orientations inherent to it. Thus, the development of the general conditions of evaluation mainly deals with specifying the skills covered by the evaluation and the criteria used to verify student mastery of skills, proposing an appropriate evaluation strategy for each skill, determining the expected performance standards and defining the notation system and the accreditation procedures.

Analysis of the information provided in the preceding sections of this chapter shows that, in all the education systems examined, it is the educational institutions that bear responsibility for developing the learning evaluation process for students in post-secondary vocational training programs—college-level technical training programs in Québec.[104] As illustrated in Table 7.1, in Québec it is the *CEGEPs* in conjunction with the *Ministère de l'Éducation, du Loisir et du Sport*,[105] in Ontario the colleges of applied arts and technology, in Massachusetts the community colleges and state colleges, and in Lithuania the colleges that develop the general conditions of learning evaluation for training offered in an educational setting, which is carried out in accordance with standards and requirements set by government departments or other authorities responsible for programs leading to a trade or an occupation.

7.5.2 Implementation of learning evaluation activities

Evaluation activities consist of giving concrete form to the process of evaluating student learning. This involves planning evaluation activities in accordance with the proposed strategy, producing evaluation documents, among them evaluation instruments used for oral testing, objective or composition-type written testing and evaluation cards for practical testing, as well as organizing and supervising in-class activities and situations of real or simulated work, analyzing the results

104. As an indicator, note that the development of the learning evaluation process for individuals in training programs in the workplace is handled not by educational institutions but by *Emploi-Québec* and Québec's human resources sectoral committees, Ontario's sectoral committees and the Massachusetts Department of Labor and Workforce Development.
105. Note that in Québec, the *Ministère de l'Éducation, du Loisir et du Sport* is responsible for developing general learning evaluation procedures for students in secondary-level vocational training programs.

achieved by students based on established criteria and the expected performance standards and assigning marks to students.

Based on data brought to light in the preceding sections of this chapter and in Table 7.1, in all the education systems examined, with the exception of Lithuania, the evaluation activities involved in implementing the process of evaluating student learning in post-secondary vocational training programs—college-level technical training programs in Québec—are the responsibility of the educational institutions.[106] More specifically, the *CEGEPs* of Québec, the colleges of applied arts and technology in Ontario and the community colleges and state colleges in Massachusetts generally entrust the responsibility of implementing learning evaluation activities to their teaching staff who offer the various courses within the programs of study. Lithuania is different in that it is the members of the Qualification Exam Commissions of each college who are responsible.

106. Note that the implementation of learning evaluation activities for students in workplace training programs is not handled by the educational institutions but by individual mentors in conjunction with *Emploi-Québec* and Québec's human resources sectoral committees; in Ontario by the Ministry of Training, Colleges and Universities with its sectoral committees; in Massachusetts by the teaching staff of the community college that offers the theoretical part of the program and the employer who receives the trainees.

Table 7.1 Summary table of authorities responsible for developing general procedures for evaluating learning and those responsible for their implementation, by state and type of training

Type of training	Authority that develops the general conditions of evaluation	Authority that implements evaluation activities
Québec		
Secondary-level vocational training	*Ministère de l'Éducation, du Loisir et du Sport*	*Ministère de l'Éducation, du Loisir et du Sport*, and teaching staff of the vocational training centre
College-level technical training	*Ministère de l'Éducation, du Loisir et du Sport*, in conjunction with the *CEGEP*	*CEGEP*, specifically the teaching staff
Ontario		
Vocational training in an educational setting	College of applied arts and technology	College of applied arts and technology, specifically the teaching staff
Vocational training in the workplace	Sectoral committee	Ministry of Training, Colleges and Universities
Massachusetts		
Vocational training in an educational setting	Community college and state college	Community college and state college, specifically the teaching staff
Vocational training in the workplace	Massachusetts Department of Labor and Workforce Development	Teaching staff of the community college and the employer
Lithuania		
Secondary-level vocational training	Chambers of Commerce, Industry and Crafts or Lithuanian Chamber of Agriculture	Qualification Exam Commission, whose members are designated by the Chambers
Post-secondary vocational training	College	Qualification Exam Commission of the college

8 Principal observations concerning the sharing of responsibilities among training program authorities for programs leading to a trade or an occupation offered in different education systems

Discussion of the observations resulting from the literature review concerning the sharing of responsibilities for programs leading to a trade or an occupation by authorities within the education systems in Québec, Ontario, Massachusetts and Lithuania is oriented around three themes. They are: the conditions to assemble to ensure continuity of training paths, the principal characteristics of developing programs of study and the principal characteristics of evaluating the learning achieved by students through programs leading to a trade or an occupation.

However, before proceeding, it seems valuable to discuss the objectives the education systems examined have taken as priorities in reforming their education systems. In effect, during the 1990s, these education systems sought to implement training offerings as an efficient means of preparing for entry to the labour market. Moreover, they did this by, among other things, focusing on continuity of training paths and increased independence for educational institutions, particularly with regard to program of study development and the organization of the learning evaluation process.

Objectives pursued in carrying out education reforms and the means implemented to achieve them

During the last decade, Québec, Ontario, Massachusetts and Lithuania, underwent a reform of their education systems, as was the case with most industrialized nations. The reforms included changes to programs leading to a trade or an occupation. The context of the reform is characterized by major economic changes in these jurisdictions, such as the shift from a mass production economy to an economy based on knowledge, skill and technological innovation, the opening of markets through multilateral agreements, the increased use of computers in production techniques and, consequently, demand for increasingly skilled and flexible labour.

In an effort to adapt to these new economic and social realities, these jurisdictions sought to implement an education system that would not only foster increased education levels among the population and better matching of skills acquired through training programs with those needed to hold employment in the labour market, but also offer the flexibility needed as society adjusts to the rapid pace of change. Thus, the means were put in place to achieve their objectives, which relate primarily to the following:

- These jurisdictions favoured programs of study that enable students to follow variable training paths, i.e. moving from one level of education to another or from one training path to another while earning recognition of a set of or some skills regardless of the place or mode of acquisition of the skills. In other words, continuity was made a condition of promoting flexible training offerings, accessibility to programs leading to a trade or an occupation and the occupational qualifications of human resources.

- These jurisdictions also favoured an approach based on the acquisition of skills, generally known as a skills-based approach, in developing programs leading to a trade or an occupation and the associated learning evaluation processes. In so doing, the jurisdictions have clearly defined the sharing of responsibilities by partners in the labour market and within the educational system in terms of the development of occupational activity reference systems, training reference systems and evaluation reference systems, all of which are based on the skills necessary to perform a given occupation or a group of related occupations.

- All jurisdictions, with the exception of Québec, also favoured giving increased independence to post-secondary educational institutions by defining a new sharing of responsibilities between government departments, their related agencies and the educational institutions in question. With the latitude needed to determine their strategic orientations, the educational institutions can thus develop programs of study—including learning and evaluation activities—appropriate for the characteristics of the communities served and easily adaptable to changes observed in society.

Conditions required for continuity of training paths

As part of the strategy enacted by these jurisdictions to achieve the objectives of education reform,, the conditions that foster continuity of education paths can be grouped into two models based on distinct approaches. The North American model is based on the recognition of credits acquired through courses within a program of study while the European model is based on the recognition of skills acquired in different places and via different modes.

- The North American model consists primarily of harmonizing programs of study and creating bridge between levels of education. In effect, continuity of training paths is ensured by establishing links between the skills targeted by secondary-level vocational programs of study, post-secondary vocational programs of study—college-level technical programs of study in Québec—and university programs of study within a single training sector or different training sectors and by reaching agreements between educational institutions that offer related programs of study. The harmonization of programs of study and the creation of bridges thus prevent overlapping training offerings and ensure students' credits from specific courses are recognized, reducing the period of study in the process.

- The European model is based on a recommendation of the Copenhagen Declaration. It concerned the implementation of an occupational qualifications system common to all member countries of the European Union to permit mobility for students and human resources and promote continuing training and professional upgrading. Continuity of training paths is thus ensured by the use of a single evaluation reference system for learning achieved in the education system or in the workplace. It is also ensured by grouping the skills required to perform an occupation or a group of related occupations into independent training blocks. Unlike the situation in the North American model, training blocks are not part of programs of study but rather sets of skills to be acquired in preparation for a given occupation and these skill sets can be arranged in different ways depending on the training path.

Principal characteristics of program development

Under the new formulas for sharing of responsibilities among authorities for programs leading to a trade or an occupation and educational institutions, as defined by the various jurisdictions when they reformed their education systems, program of study development is generally a task handled by the educational institutions. In effect, although government departments and other organizations set training standards and requirements and evaluate and approve new programs of study, the educational institutions are responsible for most activities related to program development. It is important, then, to note the following.

- In the jurisdictions examined, with the exception of Massachusetts, a national consensus has been reached as to the skills necessary to perform a given occupation or a group of related occupations, skills grouped into a occupational activity reference system used to develop a training reference system appropriate to the needs of the labour market. Thus, government departments and associated organizations define standards for the skills to be acquired through programs leading to a trade or an occupation — standards that must be respected when programs are revised or newly developed. However, in Québec, the occupational activity reference system overlaps with the training reference system. This means the skills to be acquired are an integral part of training programs that have specific objectives and standards as well as other elements of a didactic and pedagogical nature.

- In the jurisdictions examined, except Québec, educational institutions are responsible for proposing revisions or development of programs leading to a trade or an occupation. To do this, educational institutions in collaboration with consultative bodies conduct studies to determine current and future needs for skilled labour within an occupation or a group of related occupations or within a given sector of economic activity. For their part, the government departments evaluate the relevance of the proposed new programs and approve or reject their development. In Québec, this responsibility is generally taken on by the *Ministère de l'Éducation, du Loisir et du Sport*.

- In the jurisdictions examined, with the exception of Québec, educational institutions are responsible for revising or developing programs leading to a trade or an occupation in accordance with standards set by government departments or other organizations. Among other activities, this involves defining the goals and objectives of the program and the skills to be acquired, proposing a training mode, determining criteria for verifying student mastery of skills, proposing an evaluation strategy appropriate to each skill and determining the expected performance standards. In Québec, this responsibility is handled jointly by the *Ministère de l'Éducation, du Loisir et du Sport*, which sets objectives and standards for the general training components and the specific component of technical programs of study, and by the college educational institutions, which define learning activities designed to lead to the acquisition of the skills targeted by the programs. Note that the Ministry can determine some or all of the learning activities concerning objectives and standards under the common general training component.

- In the jurisdictions examined, except Québec, government ministries, their related agencies and partners are responsible for evaluating revised and newly developed programs in accordance with standards or as prescribed by law, regulation or reference frameworks,

which they then approve as appropriate. In effect, in Massachusetts and Lithuania, this activity is managed by the ministries, their associated agencies or employers' organizations. In Ontario, it is carried out by an independent organization. In Québec however, this activity is not implemented since the *Ministère de l'Éducation, du Loisir et du Sport* develops the programs of study itself.

- In the jurisdictions examined, educational institutions are responsible for program of study implementation. More specifically, educational institutions entrust their teaching staff who offer the various courses in a program of study and bear the responsibility for planning, organizing and implementing learning activities.

Principal characteristics of evaluating learning achieved through programs leading to a trade or an occupation

As a corollary to the independence they enjoy in developing programs leading to a trade or an occupation, educational institutions also have a certain latitude in terms of determining the process of evaluating student learning. Note the following observations.

- In the jurisdictions examined, the post-secondary educational institutions—the college educational institutions in Québec—are responsible for developing the process of evaluating learning achieved through programs leading to a trade or an occupation in accordance with standards set by government departments or organizations. They also formulate the major orientations inherent to the process, i.e. defining the skills targeted by the evaluation and the criteria used to verify student mastery, proposing an evaluation strategy appropriate to each skill, determining the expected performance standards and defining the notation system and the accreditation procedures. Note that in Québec, the college educational institutions handle this responsibility jointly with the *Ministère de l'Éducation, du Loisir et du Sport*.

- In the jurisdictions examined, with the exception of Lithuania, implementation of the learning evaluation process for programs leading to a trade or an occupation—including planning of the evaluation activities under the proposed strategy, production of evaluation instruments and the organization and supervision of evaluation activities in class or in real or simulated work situations—is the responsibility of the educational institutions' teaching staff. In Lithuania, however, this responsibility is handled by the members of each college's Qualification Exam Commissions.

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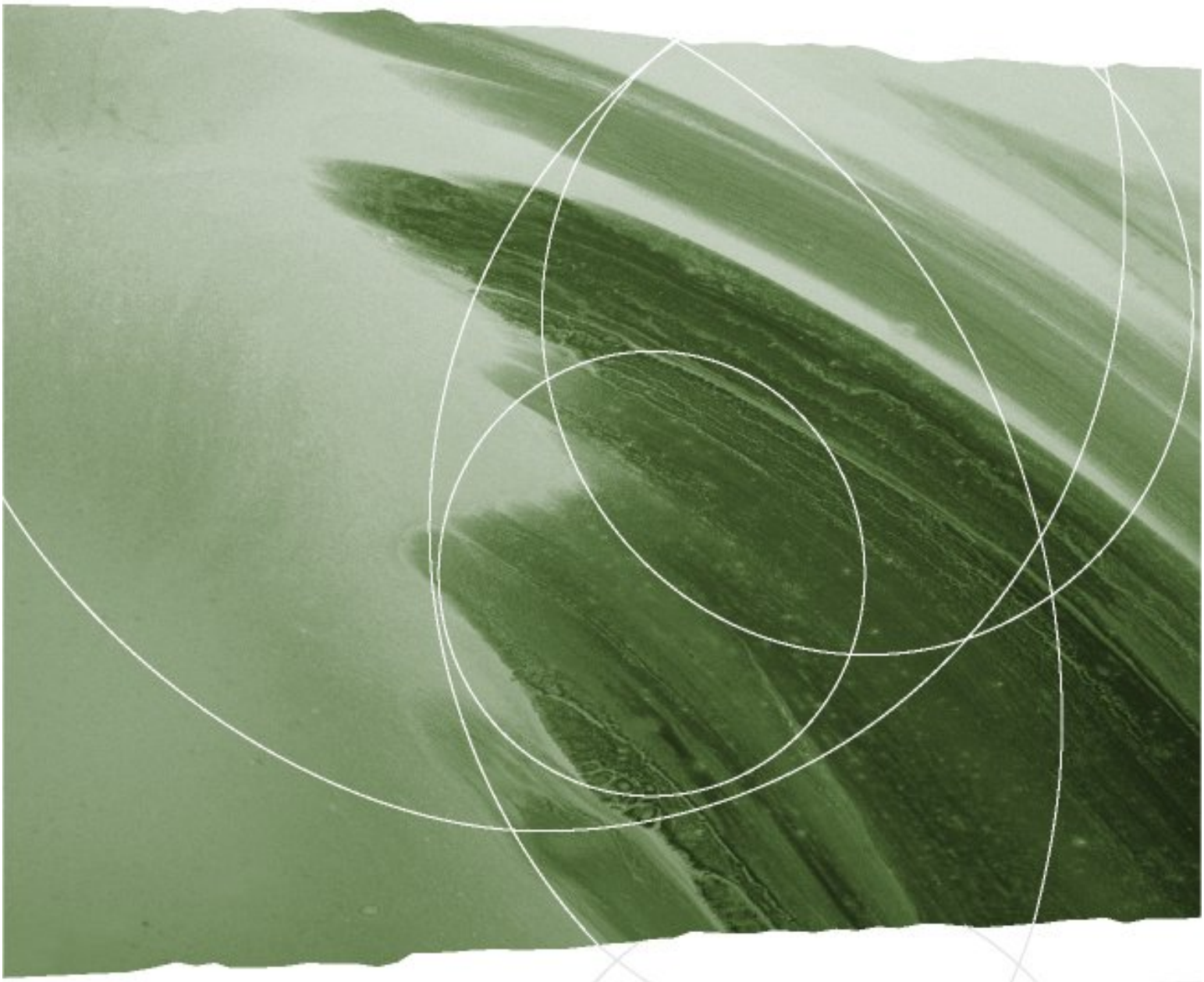

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