Education at a Glance
OECD INDICATORS

Country Profile for Canada
2007

Council of Ministers of Education, Canada
Conseil des ministres de l'Éducation (Canada)

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Introductory Note

This document, *Country Profile for Canada*, is intended to provide an overview of the data reported for **Canada** in *Education at a Glance 2007, OECD Indicators* (EAG 2007). Readers are invited to explore the full document in more depth, if they wish.

The text in italic type in this country profile is extracted directly from EAG 2007 and has page (p.) references to the longer document. Please note that the EAG 2007 text has not been edited for this country profile. The comments in regular type relate to **Canada** but are derived from the tables and charts in EAG 2007.

The section entitled Background Information at the end of this document is drawn directly from the "Introduction" in EAG 2007 and is included here for the reader's convenience.

Chapter A: The output of educational institutions and the impact of learning

Indicator A1: To what level have adults studied?

This indicator profiles the educational attainment of the adult population, as captured through formal educational qualifications. As such it provides a proxy for the knowledge and skills available to national economies and societies. Data on attainment by fields of education and by age groups are also used in this indicator both to examine the distribution of skills in the population and to have a rough measure of what skills have recently entered the labour market and of what skills will be leaving the labour market in the coming years. It also looks at the effects of tertiary education expansion and asks whether this leads to the overqualified crowding out the lesser qualified. (p. 24)

Educational attainment refers to the highest level of schooling an individual has completed and serves as a proxy for measuring human capital — the skills available in the population and labour force. Almost half of the Canadian population aged 25 to 64 has completed either college or university. (Table A1.3a). Five countries, Denmark, Iceland, the Netherlands, Norway, and the United States, have a greater proportion of their population with university-level educational qualifications than **Canada**. **Canada** has the highest proportion with college-level qualifications.

Note that the data source (Labour Force Survey) for the Canadian data does not allow for a clear delineation between "postsecondary non-tertiary education" and "tertiary-type B education." As a result, the figure reported for college (tertiary-type B) is inflated.

Indicator A2: How many students finish secondary education?

This indicator shows the current upper secondary graduate output of education systems, i.e. the percentage of the typical population of upper secondary school age that follows and successfully completes upper secondary programmes. (p. 42)

No data for **Canada** are included in this indicator.

Indicator A3: How many students finish tertiary education?

This indicator first shows the current tertiary graduate output of educational systems, i.e. the percentage of the population in the typical age cohort for tertiary education that follows and successfully completes tertiary programmes, as well as the distribution of tertiary graduates across fields of education. The indicator then examines the number of science graduates in relation to employed persons. It also considers whether gender differences concerning motivation in mathematics at the age of 15 may affect tertiary graduation rates. Finally, the indicator shows survival rates at the tertiary level, i.e. the

proportion of new entrants into the specified level of education who successfully complete a first qualification.

Tertiary education covers a wide range of programmes, but overall serves as an indicator of the rate at which countries produce advanced knowledge. A traditional university degree is associated with completion of "type A" tertiary courses; "type B" generally refers to shorter and often vocationally oriented courses. The indicator also sheds light on the internal efficiency of tertiary educational systems. (p. 54)

> Data for **Canada** are included (for 2004) for the percentage of tertiary graduates (university only), by field of education; for science graduates by gender; and for the relationship between motivation in mathematics at 15 years old (PISA 2003) and tertiary-type A graduation rates, by gender.
>
> The largest percentage (40.1%) of Canadian tertiary graduates are in the field of social sciences, business, law, and services. In 2004, **Canada** had 1,163 science graduates per 100,000 employed 25- to 34-year-olds. This was higher than Germany and the United States, and comparable with Japan, but below the other G7 countries.

Indicator A4: What are students' expectations for education?

Drawing on data from the Programme for International Student Assessment (PISA) 2003 survey, this indicator presents the highest level of education that 15-year-old students report they expect to complete. The indicator first provides an overall picture of students' academic expectations in OECD countries and then examines relationships between expectations for tertiary education (ISCED 5 or 6) and variables such as individual performance levels, gender, socio-economic status and immigrant status, in order to shed light on equity issues. (p. 74)

*[Table A4.1b] also shows that there can be large differences between the percentage of students expecting to complete ISCED 5A or 6 and an individual country's actual proportion of graduates for these levels. These differences tend to be the largest for those countries with the highest expectation rates in the first place. In these countries (e.g. Australia, **Canada**, Greece, Korea, and the United States), many students may expect to complete a certain level of education, but a relatively larger percentage of those who expect to may not ultimately do so. Conversely, the differences tend to be the smallest in those countries with relatively lower expectation rates at the start. In these countries (e.g. Denmark, Germany, Switzerland), students may be projecting a realistic vision of their chances for this type of education and perhaps are adjusting their expectations according to their national realities or their current place within a tracked education system (such as in Switzerland). Alternatively, the relatively lower rates of graduation from that level may be influenced by the overall low rates of aspiration to that level.* (p. 78)

*The odds that first- and second-generation students will have higher expectations relative to native-born students are especially high in Australia and **Canada** – where these students are at least two times more likely to have such educational expectations.* (p. 82)

Indicator A5: What are students' attitudes towards mathematics?

This indicator examines how 15-year-old students' attitudes toward and approaches to learning and school vary across countries and across groups of countries, as well as the relationship between these characteristics and students' performance in mathematics. The indicator draws on data from the OECD Programme for International Student Assessment's (PISA) 2003 survey. (p. 90)

Chart A5.1 shows the results of a classification analysis, which grouped countries according to similarities among their averages on the 12 scales. Box 5.2 provides additional information on how the classification analysis was performed. The ordering of groups from top to bottom in the chart is arbitrary and implies no sense of hierarchy. (p. 91)

The results show that group membership is related to countries' geographical or cultural proximity. For example, two East Asian countries – Japan and Korea – form one group while three of the Nordic countries (Finland, Sweden, and Denmark) form another, and the Central European countries Hungary, Poland, the Czech Republic, and the Slovak Republic form a third group. In these cases, the grouped countries share geographic proximity as well as some commonality in the way the education systems have developed historically. The four Central European countries, for example, share characteristics based on their having developed over the past two decades from centralised socialist states. Western and Southern European countries also cluster together, as do the Benelux countries (with Norway as an anomalous addition to that group).

*In the case of the United States, **Canada**, New Zealand and Australia, which are classified closely, the proximity is not in terms of geography, but language – these countries represent most of the predominantly Anglophone OECD countries that participate in PISA. The group of Austria, Germany and Switzerland shares both geographic and linguistic similarities*. (p. 93)

*Compared to these subgroups, the remaining countries are less distinctive. Still, in Denmark, Finland and Sweden (Group D) students report the lowest levels of anxiety in mathematics and they tend to shy away from control strategies (and, to some extent, memorisation strategies) compared to students in other countries. Australia, **Canada**, Iceland, New Zealand and the United States, (Group F) are somewhat distinct from other subgroups in the relatively high reported levels of teacher support and students' self-concept in mathematics. Students in the Czech Republic, Hungary, Poland and the Slovak Republic (Group G) reported the highest levels of self-efficacy in math. Finally, the subgroup of France, Greece, Ireland, Italy, Portugal and Spain (Group H) was mostly at the average across countries on the 12 scales*. (p. 95)

Indicator A6: What is the impact of immigrant background on student performance?

This indicator compares the performance in mathematics and reading of 15-yearold students with an immigrant background with their native counterparts, using data from the OECD Programme for International Student Assessment 2003 survey. It also looks at the motivation of these students to learn. (p. 104)

Among the 14 OECD countries with significant immigrant populations, first-generation students lag 48 score points behind their native counterparts on the PISA mathematics scale, equivalent to more than a school year's progress, on average. The performance disadvantage of second generation students also remains significant, at 40 score points.

*This suggests that schools and societies face major challenges in bringing the human potential that immigrants bring with them fully to fruition. At the same time, Chart A6.1 shows that the performance disadvantage of students with an immigrant background varies widely across countries, from insignificant amounts in Australia, **Canada** and New Zealand and the partner economy Macao-China to more than 90 score points in Belgium and Germany even for second-generation children. Further to this, Table A6.1 shows considerable differences in the absolute performance levels of immigrants, with second-generation 15-year-old immigrants in **Canada** outperforming their German counterparts by 111 score points, a gap that is equivalent to almost three school years. Some of these differences can be explained by socio-economic contextual factors but the residual performance gap that remains after taking such factors into account is sufficiently large to make cross-national analyses a rich source for the search of effective policies for the integration of these students. It should be noted that there is no positive association between the size of these student populations in the countries studied and the size of the performance differences between native students and those with an immigrant background. This finding contradicts the assumption that high levels of immigration will generally impair integration (OECD, 2006b).*

*Without longitudinal data, it is not possible to assess directly to what extent the observed disadvantages of students with an immigrant background are alleviated over successive generations. However, comparing the performance of students who were born in a different country with students who were themselves born in the country but have foreign-born parents shows important differences (Table A6.1a). In the OECD area as a whole, second-generation students tend to perform better than their first-generation counterparts, as one might expect as they did not need to make transitions across systemic, cultural, and linguistic borders. However, these gains vary widely across countries. In **Canada**, Luxembourg, Sweden and Switzerland and the partner economy Hong Kong-China, second-generation students perform significantly better than first-generation students, with the performance gap reduced by 31 score points in Switzerland and 58 score points in Sweden. In other countries the performance advantage of second-generation students over first-generation students is much smaller and not statistically significant. Germany and New Zealand even show the opposite pattern, with second-*

generation students born in these countries performing worse than first-generation students. Given the nature of the PISA data, these patterns may be influenced by differences in the composition of the first and second-generation student populations. (p. 107)

*A very different picture emerges for Australia and **Canada** and the partner economies Hong Kong-China and Macao-China. In these countries, the percentage of students performing below Level 2 is comparatively low in all groups, with less than 16% of first-generation, second generation or native students failing to reach Level 2. The comparatively positive situation of students with an immigrant background in Australia and **Canada** may, in part, be a result of selective immigration policies resulting in immigrant populations with greater wealth and education. In Hong Kong-China and Macao-China the ethnic background and language between native students and those with an immigrant background is often similar, even if large socioeconomic differences exist. However, the bottom line is that these countries have only a relatively small proportion of students at low levels of mathematical literacy*. (p. 109)

*In most European countries, students with an immigrant background come from lower level socio-economic backgrounds and their parents often are less educated than native students' parents. This is also the case in the United States and Hong-Kong China. In contrast, the background characteristics of these students and their native counterparts are similar in Australia, **Canada** and New Zealand, and in the partner economies Macao-China and the Russian Federation. At the country level, there is a relationship between the relative mathematics performance of students with an immigrant background and their relative educational and socio-economic background. However, performance differences remain between these students and native ones in many countries after accounting for these background characteristics. For example, there are still significant performance differences between native and second-generation students in Austria, Belgium, Denmark, France, Germany, Luxembourg, the Netherlands, New Zealand, Norway and Switzerland. This suggests that the relative performance levels of students with an immigrant background cannot solely be attributed to the composition of immigrant populations in terms of their educational and socio-economic background. Students with an immigrant background who do not speak the language of instruction at home tend to be lower performing in mathematics in several countries. Even after accounting for parents' educational and occupational status, the performance gap associated with the language spoken at home remains significant in Belgium, **Canada**, Germany and the United States, as well as in the partner economies Hong Kong-China, Macao-China and the Russian Federation. Countries with a strong relationship between the language students speak at home and their performance in mathematics may want to consider strengthening language support measures in schools (OECD, 2006b).* (p. 111)

Indicator A7: Does the socio-economic status of their parents affect students' participation in higher education?

This indicator examines the socio-economic status of students enrolled in higher education, an important gauge of access to higher education for all. International

comparable data on the socio-economic status of students in higher education is not widely available and this indicator is a first attempt to illustrate the analytical potential that would be offered by better data on this issue. It takes a close look at data from ten OECD countries, examining the occupational status (white collar or blue collar) of students' fathers and the fathers' educational background and also considers data from the OECD Programme for International Student Assessment (PISA) 2000 survey. (p. 116)

Canada is not among the ten countries considered in this indicator.

Indicator A8: How does participation in education affect participation in the labour market?

This indicator examines relationships between educational attainment and labour force status, for both males and females, and considers changes in these relationships over time. (p. 124)

*Between 1995 and 2005, on average across OECD countries, the unemployment rates for those with upper secondary education decreased by almost 1.5 percentage points. Among the 15 countries that experienced this decrease, Australia, **Canada**, Denmark, Finland, France, Ireland, Italy, Mexico, Netherlands, New Zealand, Spain and the United Kingdom also decreased the unemployment rates for those with education below the upper secondary level and for those with tertiary education. Although the difference between the unemployment rate among individuals with upper secondary and tertiary levels of education has been stable over the past ten years, achieving an upper secondary education makes less of a difference in the labour market than the achievement of tertiary education since the tertiary-level unemployment rate is almost – except Italy and Mexico – always lower than the upper secondary level rate (Table A8.4a)*. (p. 130)

Indicator A9: What are the economic benefits of education?

This indicator examines the relative earnings of workers with different levels of educational attainment of 25 OECD countries and the partner economy Israel. This indicator also presents data that describe the distribution of pre-tax earnings (see Annex 3 for notes) within five ISCED levels of educational attainment to help show how returns to education vary within countries among individuals with comparable levels of educational attainment. The financial returns to educational attainment are calculated for investments undertaken as a part of initial education, as well as for the case of a hypothetical 40-year-old who decides to return to education in mid-career. For the first time, this indicator presents new estimates of the rate of return for an individual investing in upper secondary education instead of working for the minimum wage with a lower secondary level of education. (p. 140)

*For 25-to-64-year-olds, financial rewards from tertiary education benefit females more than males in Australia, Austria, **Canada**, Ireland, Korea, the Netherlands, Norway, Spain, Switzerland, Turkey and the United Kingdom. The reverse is true in the remaining countries, with the exception of Belgium and Germany, where – relative to upper*

secondary education – the earnings of males and females are equally enhanced by tertiary education (Table A9.1a). (p. 144)

The data show that in most countries the share of individuals in the lowest earnings categories falls as the level of educational attainment rises. This result is another way of viewing the well established positive relationship between earnings and educational attainment. However, it is notable that even at higher levels of education there are individuals in the lower earnings categories, indicating that they have experienced a relatively low rate of return to education.

Still, countries differ significantly in the dispersion of earnings. For instance, Table A9.4a shows that in most countries the largest proportion of the population has earnings above one-half of the median but less than 1.5 times the median. Yet this percentage ranges from less than 45% in ***Canada*** *to more than 80% in Belgium. Across all levels of education, countries such as Belgium, the Czech Republic, Luxembourg and Portugal have no or relatively few individuals with earnings either at or below one-half the median. Conversely, while across all countries almost 22%, on average, of individuals between the ages of 25 and 64 have earnings above 1.5 times the median, this population share is as low as 14.1% in Belgium.* (pp. 145-146)

Note Box A9.1. Variations in earnings by disciplines – the example of **Canada** (see page 149)

Chapter B: Financial and human resources invested in education

Indicator B1: How much is spent per student?

This indicator provides an assessment of the investment made in each student. Expenditure per student is largely influenced by teacher salaries (see Indicators B6 and D3), pension systems, instructional and teaching hours (see Indicators D1 and D4), teaching materials and facilities, the programme orientation provided to pupils/students (see Indicator C2) and the number of students enrolled in the education system (see Indicator C1). Policies put in place to attract new teachers or to reduce average class size or staffing patterns (see Indicator D2) have also contributed to changes over the time in expenditure per student. (p. 170)

No expenditure data for **Canada** are included in this indicator.

Indicator B2: What proportion of national wealth is spent on education?

Education expenditure as a percentage of GDP shows how a country prioritises education in relation to its overall allocation of resources. Tuition fees and investment in education from private entities other than households (see Indicator B5) have a strong impact on differences in the overall amount of financial resources that OECD countries devote to their education systems, especially at the tertiary level. (p. 194)

Data for **Canada** are included for expenditure on educational institutions as a percentage of GDP, by levels of education for 1995 and 2000 but not 2004, and for change in expenditure on educational institutions from 1995 to 2002.

Indicator B3: How much public and private investment is there in education?

This indicator examines the proportion of public and private funding allocated to educational institutions for each level of education. It also provides the breakdown of private funding between household expenditure and expenditure from private entities other than households. This indicator sheds some light on the widely debated issue of how the financing of educational institutions should be shared between public entities and private ones, particularly those at the tertiary level. (p. 210)

Data for **Canada** are included for 1995 to 2002, but not for 2003 or 2004.

Indicator B4: What is the total public spending on education?

Public expenditure on education as a percentage of total public expenditure indicates the value placed on education relative to that of other public investments such as health care, social security, defence and security. It provides an important context for the other indicators on expenditure, particularly for Indicator B3 (the public and private shares of

educational expenditure), as well as quantification of an important policy lever in its own right. (p. 224)

Data for **Canada** are included for 1995.

Indicator B5: How much do tertiary students pay, and what public subsidies do they receive?

This indicator examines the relationships between annual tuition fees charged by institutions, direct and indirect public spending on educational institutions, and public subsidies to households for student living costs. It considers whether financial subsidies for households are provided in the form of grants or loans and poses related questions central to this discussion: Are scholarships/grants and loans more appropriate in countries with higher tuitions fees charged by institutions? Are loans an effective means to help increase the efficiency of financial resources invested in education and shift some of the cost of education to the beneficiaries of educational investment? Or are student loans less appropriate than grants in encouraging low income students to pursue their education? While these questions cannot be fully answered here, this indicator presents information about the policies for tuition fees and subsidies in different OECD countries. (p. 232)

Data for **Canada** are provided on types of subsidies, but not on amounts of public subsidies.

Indicator B6: On what resources and services is education funding spent?

This indicator compares OECD countries with respect to the division of spending between current and capital expenditure, and the distribution of current expenditure by resource category. It is largely influenced by teacher salaries (see Indicator D3), pension systems, teacher age distribution, size of the non-teaching staff employed in education (see Indicator D2 in Education at a Glance 2005) and the degree to which expansion in enrolments requires the construction of new buildings. It also compares how OECD countries' spending is distributed by different functions of educational institutions. (p. 252)

No data for **Canada** are included in this indicator.

Indicator B7: How efficiently are resources used in education?

This indicator examines the relationship between resources invested and outcomes achieved in primary and lower secondary education across OECD countries and thus raises questions about the efficiency of their education systems. (p. 262)

*Countries that perform significantly higher than would be expected from their spending per student alone include Australia, Belgium, **Canada**, the Czech Republic, Finland, Japan, Korea and the Netherlands. Countries that perform significantly below the level of*

performance predicted from spending per student include Greece, Italy, Mexico, Norway, Portugal, Spain and the United States. (p. 265)

Chapter C: Access to education, participation and progression

Indicator C1: How prevalent are vocational programmes?

This indicator shows the participation of students in vocational education and training (VET) at the upper secondary level of education and compares the levels of education expenditure per student for general programmes and VET. This indicator also compares the educational outcomes of 15-year-old students enrolled in general education and in vocational education. (p. 270)

No data for **Canada** are included in this indicator.

Indicator C2: Who participates in education?

This indicator examines access to education and its evolution by using information on enrolment rates and trends in enrolments from 1995 to 2005. It also shows patterns of participation at the secondary level of education and the percentage of the youth cohort that will enter different types of tertiary education during their lives. Entry and participation rates reflect both the accessibility of tertiary education and the perceived value of attending tertiary programmes. For information on vocational education and training in secondary education, see Indicator C1. (p. 280)

Data for **Canada** are included for trends in enrolment rates (1995-2005), up to 2004; and students in tertiary education by type of institution or mode of study (2005), for mode of study for tertiary-type A.

Enrolment rates in **Canada** show little change over the reporting period. In 2004, 79 per cent of 15- to 19-year-olds were enrolled in either full-time or part-time education, as were 25% of 20- to 29-year-olds. Three-quarters of university students were studying full time in 2004.

Indicator C3: Who studies abroad and where?

This indicator is providing a picture of student mobility and the extent of the internationalisation of tertiary education in OECD countries and partner economies. It shows global trends and highlights the major destinations of international students and trends in market shares of the international student pool. Some of the factors underlying students' choice of a country of study are also examined. In addition, the indicator looks at the extent of student mobility in different destinations and presents the profile of the international student intake in terms of their distribution by countries and regions of origin, types of programmes, and fields of education. The distribution of students enrolled outside of their country of citizenship by destination is also examined. Finally, the contribution of international students to the graduate output is examined alongside

immigration implications for their host countries. The proportion of international students in tertiary enrolments provides a good indication of the magnitude of student mobility in different countries. (p. 293)

In 2005, more than five out of ten foreign students went to a relatively small number of destinations. Indeed, only four countries host the majority of foreign students enrolled outside of their country of citizenship: the United States receives the most foreign students (in absolute terms) with 22% of the total of all foreign students worldwide, followed by the United Kingdom (12%), Germany (10%) and France (9%). Altogether, these four major destinations account for 52% of all tertiary students pursuing their studies abroad (Chart C3.2).

Besides these four major destinations, in 2005 significant numbers of foreign students were enrolled in Australia (6%), Japan (5%), ***Canada*** *(3%), New Zealand (3%) and the partner economy the Russian Federation (3%)*. (p. 304)

The dominance of English-speaking destinations such as Australia, ***Canada****, the United Kingdom and the United States (in absolute numbers) may be largely attributable to the fact that students intending to study abroad are most likely to have learnt English in their home country, and/or wish to improve their English language skills through immersion and study abroad. The rapid increase in foreign enrolments in Australia (index change of 167), Ireland (174) and, most importantly, New Zealand (845) between 2000 and 2005 can to some extent be attributed to similar linguistic considerations (Table C3.1)*.(p. 306)

Language considerations, geographic proximity and similarity of education systems are important determinants of the choice of destination. Geographic considerations and differences in entry requirements are likely explanations of the concentration of students from Austria in Germany, from Belgium in France and the Netherlands, from France in Belgium, from ***Canada*** *in the United States, from New Zealand in Australia, from China in Japan etc. Language issues as well as academic traditions also shed light on the propensity for Anglophone students to concentrate in other countries of the Commonwealth or in the United States, even those geographically distant. Migration networks also play a role, as illustrated by the concentration of students of Portuguese citizenship in France, students from Turkey in Germany or from Mexico in the United States.* (p. 313)

Indicator C4: How successful are students in moving from education to work?

This indicator shows the number of years that young people are expected to spend in education, employment and non-employment and examines the education and employment status of young people by gender. During the past decade, young people have spent more time in initial education, delaying their entry into the world of work. Part of this additional time is spent combining work and education, a practice that is widespread in some countries. Once young people have completed their initial education, access to the labour market is often impeded by periods of unemployment or non-employment, although this situation affects males and females differently. Based on the

current situation of persons between the ages of 15 and 29, this indicator gives a picture of major trends in the transition from school to work. (p. 326)

However, males and females differ very little in terms of the expected number of years in unemployment, even though expected periods of unemployment tend to be marginally longer for males. While the situation is similar for both genders in many countries, females appear to be at a particular advantage in ***Canada****, Germany, Poland, the Slovak Republic and Turkey. Periods of unemployment for females exceed those for males in only three countries: Greece, Portugal and Spain* (Table C4.1a). (p. 329)

Whereas young males can expect to spend 1.6 years neither in education nor in employment between the ages of 15 and 29, the average figure for females is 2.7 years. In the Czech Republic, Hungary, Mexico, New Zealand, the Slovak Republic and Turkey, there is a much stronger tendency for young females to leave the labour market and to spend time out of the educational system and not working. In some countries – Austria, Belgium, ***Canada****, Denmark, Finland, Iceland, Japan, the Netherlands, Norway and Sweden – young males and young females do not differ by more than half a year in this measure.* (p. 330)

Indicator C5: Do adults participate in training and education at work?

This indicator examines the participation of the adult population in non-formal job-related education and training by showing the expected number of hours in such education and training. A particular focus of this indicator is the time that a hypothetical individual (facing current conditions in terms of adult learning opportunities at different stages in life) is expected to spend in such education and training over a typical working life (a 40-year period). (p. 346)

There is substantial cross-country variation in participation rates in non-formal job-related continuing education and training. In the OECD, four countries – Denmark, Finland, Sweden and the United States – take the lead, with more than 35% of the population between 25 and 64 years of age having participated in some type of non-formal job-related continuing education and training over the previous 12 months. The participation rate is lower than 10% in Greece, Hungary, Italy, the Netherlands, Poland, Portugal and Spain. Between these two extremes, the incidence of participation in education and training varies greatly; for example, the figure is about 11% in the Czech Republic and Ireland, but over twice this rate in ***Canada*** *and the United Kingdom (Table C5.1a).* (p. 348)

Canada*, Denmark, Finland, Sweden, Switzerland and the United States are notable in the extent to which they achieve relatively high expected hours in non-formal learning across age groups. Denmark and Sweden are exceptional as regards the high number of expected hours in nonformal learning in the oldest age group, with about 140 hours*. (p. 350)

Chapter D: The learning environment and organisation of schools

Indicator D1: How much time to students spend in the classroom?

This indicator examines the amount of instruction time that students are expected to receive between the ages of 7 and 15. It also discusses the relationship between instruction time and student learning outcomes. (p. 360)

No data for **Canada** are included in this indicator.

Indicator D2: What is the student-teacher ratio and how big are classes?

This indicator examines the number of students per class at the primary and lower secondary levels, and the ratio of students to teaching staff at all levels; it distinguishes between public and private institutions. Class size and student-teacher ratios are much discussed aspects of the education students receive and – along with the total instruction time of students (see Indicator D1), teachers' average working time (see Indicator D4) and the division of teachers' time between teaching and other duties – are among the determinants of the size of the teaching force within countries. (p. 372)

No data for **Canada** are included in this indicator.

Indicator D3: How much are teachers paid?

This indicator shows the starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education, and various additional payments and incentive schemes used in teacher reward systems. It also presents information on aspects of teachers' contractual arrangements. Together with average class size (see Indicator D2) and teachers' working time (see Indicator D4), this indicator presents some key measures of the working lives of teachers. Differences in teachers' salaries, along with other factors such as student to staff ratios (see Indicator D2) provide some explanation for differences in expenditure per student (see Indicator B1). (p. 384)

No data for **Canada** are included in this indicator.

Indicator D4: How much time do teachers spend teaching?

This indicator focuses on the statutory working time of teachers at different levels of education as well as their statutory teaching time. Although working time and teaching time only partly determine the actual workload of teachers, they do give some valuable insights into differences among countries in what is demanded of teachers. Together with teachers' salaries (see Indicator D3) and average class size (see Indicator D2), this indicator presents some key measures of the work lives of teachers. (p. 402)

No data for **Canada** are included in this indicator.

Indicator D5: How do education systems monitor school performance?

This indicator focuses on the evaluation and accountability arrangements for lower secondary public schools that exist across countries. The focus is upon the collection, use and availability of student and school performance information. This indicator complements the quantitative information relating to teacher salaries and working and teaching time (Indicators D3 and D4), instruction time of students (Indicator D1), and the relationship between number of students and numbers of teachers (Indicator D2) by providing qualitative information on the type and use of particular school accountability and evaluation arrangements. (p. 412)

No data for **Canada** are included in this indicator.

Background information

The organising framework

Education at a Glance 2007 – OECD Indicators provides a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The indicators are organised thematically, and each is accompanied by information on the policy context and the interpretation of the data. The education indicators are presented within an organising framework that:

• Distinguishes between the actors in education systems: individual learners, instructional settings and learning environments, educational service providers, and the education system as a whole;
• Groups the indicators according to whether they speak to learning outcomes for individuals or countries, policy levers or circumstances that shape these outcomes, or to antecedents or constraints that set policy choices into context; and
• Identifies the policy issues to which the indicators relate, with three major categories distinguishing between the quality of educational outcomes and educational provision, issues of equity in educational outcomes and educational opportunities, and the adequacy and effectiveness of resource management.

The following matrix describes the first two dimensions:

	1. Education and learning outputs and outcomes	**2. Policy levers and contexts shaping educational outcomes**	**3. Antecedents or constraints that contextualise policy**
I. Individual participants in education and learning	**1.I** The quality and distribution of individual educational outcomes	**2.I** Individual attitudes, engagement and behaviour	**3.I** Background characteristics of the individual learners
II. Instructional settings	**1.II** The quality of instructional delivery	**2.II** Pedagogy and learning practices and classroom climate	**3.II** Student learning conditions and teacher working conditions
III. Providers of educational services	**1.III** The output of educational institutions and institutional performance	**2.III** School environment and organisation	**3.III** Characteristics of the service providers and their communities

IV. The education system as a whole	**1.IV** The overall performance of the education system	**2.IV** System-wide institutional settings, resource allocations and policies	**3.IV** The national educational, social, economic and demographic contexts

The following sections discuss the matrix dimensions in more detail:

Actors in education systems

The OECD indicators of education systems programme (INES) seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other sub-national entities. However, there is increasing recognition that many important features of the development, functioning and impact of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions. To account for this, the indicator framework distinguishes between a macro level, two meso-levels and a micro-level of education systems. These relate to:

• The education system as a whole;
• The educational institutions and providers of educational services;
• The instructional setting and the learning environment within the institutions; and
• The individual participants in education and learning.

To some extent, these levels correspond to the entities from which data are being collected but their importance mainly centres on the fact that many features of the education system play out quite differently at different levels of the system, which needs to be taken into account when interpreting the indicators. For example, at the level of students within a classroom, the relationship between student achievement and class size may be negative, if students in small classes benefit from improved contact with teachers. At the class or school level, however, students are often intentionally grouped such that weaker or disadvantaged students are placed in smaller classes so that they receive more individual attention. At the school level, therefore, the observed relationship between class size and student achievement is often positive (suggesting that students in larger classes perform better than students in smaller classes). At higher aggregated levels of education systems, the relationship between student achievement and class size is further confounded, *e.g.* by the socio-economic intake of schools or by factors relating to the learning culture in different countries. Past analyses which have relied on macro-level data alone have therefore sometimes led to misleading conclusions.

Outcomes, policy levers and antecedents

The second dimension in the organising framework further groups the indicators at each of the above levels:

• Indicators on observed outputs of education systems, as well as indicators related to the impact of knowledge and skills for individuals, societies and economies, are grouped under the subheading *output and outcomes of education and learning;*
• The sub-heading *policy levers and contexts* groups activities seeking information on the policy levers or circumstances which shape the outputs and outcomes at each level; and
• These policy levers and contexts typically have *antecedents* – factors that define or constrain policy.

These are represented by the sub-heading *antecedents and constraints*. It should be noted that the antecedents or constraints are usually specific for a given level of the education system and that antecedents at a lower level of the system may well be policy levers at a higher level. For teachers and students in a school, for example, teacher qualifications are a given constraint while, at the level of the education system, professional development of teachers is a key policy lever.

Policy issues

Each of the resulting cells in the framework can then be used to address a variety of issues from different policy perspectives. For the purpose of this framework, policy perspectives are grouped into three classes which constitute the third dimension in the organising framework for INES:

• Quality of educational outcomes and educational provision;
• Equality of educational outcomes and equity in educational opportunities; and
• Adequacy, effectiveness and efficiency of resource management.

In addition to the dimensions mentioned above, the time perspective as an additional dimension in the framework, allows dynamic aspects in the development of education systems to be modelled also.

The indicators that are published in *Education at a Glance 2007* fit within this framework, though often they speak to more than one cell.

Most of the indicators in **Chapter A** *The output of educational institutions and impact of learning* relate to the first column of the matrix describing outputs and outcomes of education. Even so, indicators in **Chapter A** measuring educational attainment for different generations, for instance, not only provide a measure of the output of the educational system, but also provide context for current educational policies, helping to shape polices on, for example, lifelong learning.

Chapter B *Financial and human resources invested in education* provides indicators that are either policy levers or antecedents to policy, or sometimes both. For example, expenditure per student is a key policy measure which most directly impacts on the individual learner as it acts as a constraint on the learning environment in schools and student learning conditions in the classroom.

Chapter C *Access to education, participation and progression* provides indicators that are a mixture of outcome indicators, policy levers and context indicators. Entry rates and progression rates are, for instance, outcomes measures to the extent that they indicate the results of policies and practices in the classroom, school and system levels. But they can also provide contexts for establishing policy by identifying areas where policy intervention is necessary to, for instance, address issues of inequity.

Chapter D *Learning environment and organisation of schools* provides indicators on instruction time, teachers working time and teachers' salaries not only represent policy levers which can be manipulated but also provide contexts for the quality of instruction in instructional settings and for the outcomes of learners at the individual level.