Gouvernement du Québec
Ministère de l'Éducation
Direction des statistiques et des études quantitatives
http://www.meq.gouv.qc.ca
No. 9 – February 1999

Education Statistics Bulletin

Projections of Teaching Staff in Québec School Boards: 1996-97 to 2008-09

ISSN: 1480-364X
Code: 28-2703A

For several years, the Direction des statistiques et des études quantitatives of the Ministère de l'Éducation has been producing projections of teaching staff for Québec school boards. Historical observations (since 1989-90) and projections make it possible to describe the situation of teachers and to follow trends. Our model allows us to study the aging and mobility (especially in terms of retirement) of the teaching force. The results of these projections serve to produce a model for regulating pre-service teacher education programs and entry into the teaching force.

In 1995-96, more than 94 700 teachers taught in Québec school boards. Slightly more than 57 500 were employed full-time (permanent status[1]), accounting for 74% of full-time equivalents (FTEs), whereas part-time teaching staff (17 100) represented 16% of FTEs and by-the-lesson, hourly-paid or substitute (occasional) teachers (20 100), less than 10% of FTEs.

This study deals only with teaching staff employed full-time or part-time, because they represent slightly more than 90% of the FTEs, but mostly because these teachers must be qualified to teach and because the projections are used to produce a model for regulating pre-service teacher education programs.

The projections presented here are based on 1995-96 as the observation year, taking into account:

- annual observation data (and not only data observed as of September 30);
- new measures concerning the retirement of members of the Régime de retraite des employés du gouvernement et des organismes publics (RREGOP) as of January 1, 1996;
- voluntary early retirement policies as of July 1, 1997;
- the curriculum reform (but before knowing the official implementation calendar).

All projections, tables and indicators are found in the information system for managers on teacher employment (Système d'information pour dirigeants sur l'emploi du personnel enseignant–SIDE), a software program on employment in education. Available for consultation are statistical tables on teaching staff, on access to teaching certificates, access to the teaching profession, postings, mobility and recruitment requirements, as well as various tables on the regulation of pre-service teacher education programs in university.

Not all the projections concerning teaching staff, recruitment requirements and related indicators have been presented in this bulletin given the number of these tables (roughly 100). They can, however, be obtained upon request.[2] This bulletin therefore presents projection highlights for the data that were avalaible during the fall of 1997. To facilitate comprehension, hypertext links have been established with the glossary for more detailed explanations of certain terms.

L'EMPLOI EN ÉDUCATION

The SIDE is available on CD-ROM.
For further information: Renaud Martel at the Ministère de l'Éducation du Québec, (418) 528-7125

1. Refer to the glossary on pages 13 and 14. The terminology used in this bulletin is often that used in the collective agreements of teachers in Québec school boards.

2. Ministère de l'Éducation, Direction des statistiques et des études quantitatives, 1035, rue De La Chevrotière, édifice Marie-Guyart, 24e étage, Québec (Québec) G1R 5A5.

The populations studied are presented in Table 1, by field of teaching and employment status. These are annual data for the period of July 1, 1995 to June 30, 1996.[1]

Table 1
Teaching staff in Québec school boards, 1995-96, by field of teaching and employment status

Annual Data (1995-96)	Full-time Permanent Staff			Part-time Staff		
Field of Teaching	Number	%of Women	Average Age	Number	% of Women	Average Age
Special education	7 017	69.1	43.5	1 662	83.5	33.0
Preschool education	2 743	99.1	44.8	699	97.3	35.5
Elementary education	20 713	88.2	46.3	4 366	93.7	38.2
Mathematics and science	5 715	37.5	46.1	1 700	52.7	34.1
Language of instruction	3 871	59.5	46.4	1 619	81.2	38.2
General education[2]	5 943	38.8	47.0	2 023	62.0	35.6
Specialties	9 450	51.4	44.5	3 123	68.1	34.9
Vocational education	2 057	31.7	50.0	1 900	44.5	40.3
Adult education * already included in each field	[333]*	50.8	49.3	[2 650]*	77.4	42.6
All fields	**57 509**	**66.2**	**45.8**	**17 092**	**73.7**	**36.5**

A relatively older, female-dominated teaching force

Full-time permanent staff are more numerous and older than part-time staff and there are slightly fewer women. In 1995-96, close to two thirds of the 57 500 teachers with permanent positions were women, compared with almost three quarters of the 17 100 part-time teachers. A difference of more than nine years exists between the average age of full-time staff (45.8 years old on September 30, 1995) and of part-time staff (36.5).

Projections have been estimated for eight fields of teaching. The ninth field, adult education, whose teaching staff have already been included in the eight other fields, appears only for information purposes. Four fields deal with secondary education only: mathematics and science, language of instruction, general education,[2] and vocational education. Two fields concern both elementary and secondary education: special education and specialties (second language, physical education, music and the arts).

The largest field, elementary education, comprises 36% of the permanent staff and more than one quarter of the part-time staff; approximately 9 teachers out of 10 are women (preschool education staff, which are almost exclusively female, are not counted here). The smallest proportion of women is found in the fields of mathematics and science and vocational education, followed closely by secondary general education. The differences in age by field are sometimes significant: with respect to permanent staff, there is a difference of 6.5 years between vocational education teachers, the oldest field, and special education teachers, the youngest group. The age difference is similar for these two fields[3] for part-time staff.

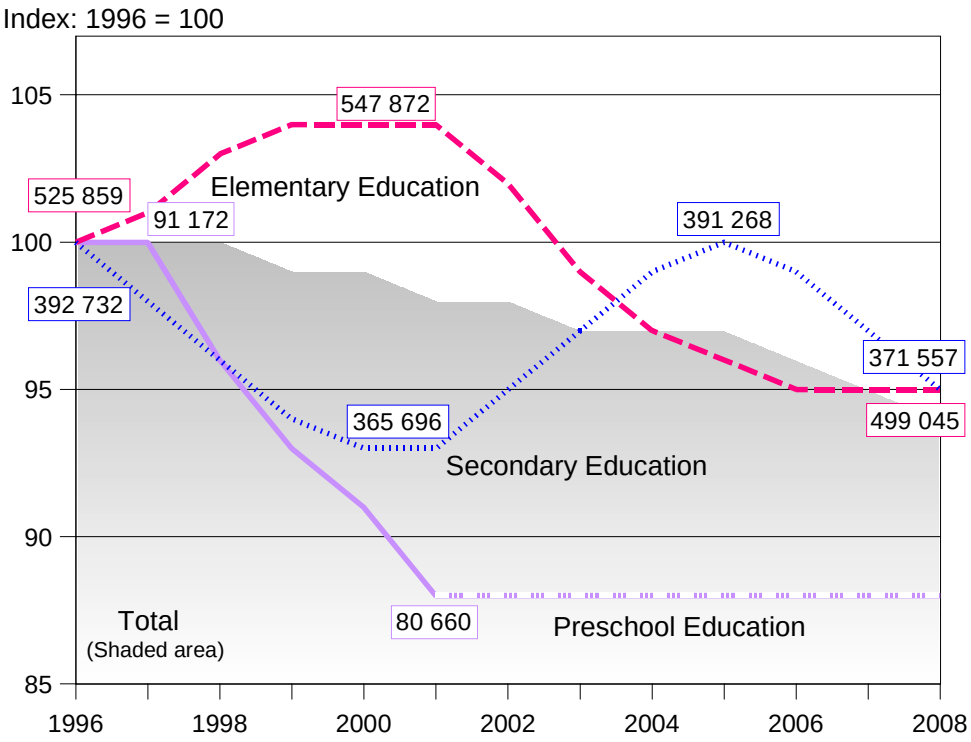
Changes in the teaching force are closely tied to changes in student enrolments. If the same student-teacher ratio is maintained, and if student enrolments are expected to decrease, then fewer teachers will be required. This number of teachers is calculated for each field of teaching, with the first key variable being an estimate of student enrolments for each level of instruction. Graph 1 shows the trends in the projection of student enrolments by level of instruction.

1. Data as of September 30 greatly underestimate teaching staff because almost 5 000 part-time teachers and approximately 575 full-time permanent teachers are omitted.

2. General education is a field created for projection models and includes religious and moral instruction, social studies and any other field not already specified for secondary education.

3. Note that adult education teachers have already been counted in the other fields. Because these teachers are older and comprise a relatively large number of part-time teachers, they bring up the average age for part-time teachers for all the fields.

Graph 1
Trends relative to student enrolments in Québec school boards by level of instruction, 1996-97 to 2008-09



The three curves in the above graph are relative indices whose base is the 1996-97 school year. Figures indicate the minimum and maximum variations of these curves.

Student enrolments in elementary and secondary education are expected to evolve in radically opposed directions. The growth in the number of births at the end of the 1980s will result in an increase in the number of students enrolled in elementary school through 2000, and this increase will subsequently be felt at the secondary level. Elementary school enrolments will grow by more than 4% from 1996-97 to 1999-2000, going from 525 859 to 547 872, then will quickly drop until 2008-09 to fewer than 500 000.

Student enrolment trends divergent at the elementary and secondary levels

The opposite is happening at the secondary level: during the growth period at the elementary level, there will be a decline of close to 7% in student enrolments, from 392 732 in 1996-97 to 365 696 in 2000-01, then a rapid rise that will bring enrolments back to 1996-97 levels in 2005-06. The following year, secondary enrolments will again begin to drop because fewer students will go from elementary school to secondary school at the beginning of the years 2000.

There will be a major drop of 12% in preschool education enrolments in only four years. Then, using a rather optimistic hypothesis, we estimate that enrolments will remain constant from 2001-02 to 2008-09.[1]

Thus, student enrolments overall will decrease by approximately 6% between 1996-97 and 2008-09, for an average annual decline of 0.4%. Because the demand for teachers corresponds to the number required to teach students and we have used the same student-teacher ratio, we can expect the drop in student enrolments through 2008-09 to result in a similar decrease in the teaching staff required. But it is not as simple as this.

1. The most recent provisional data indicate that the decline should continue after 2001-02, perhaps even as intensely.

Considerable impact of new full-time kindergarten and curriculum reform

Projections of teaching staff are established for each field of teaching. When a field is common to two levels of instruction, different trends in enrolments at each level cancel out or magnify the variations in teacher demand. Also, non-recurrent events may affect demand: for example, kindergarten for five-year-olds went from part-time to full-time, which increased teacher demand; and curriculum reform is expected to increase by one third the number of English, second language, teachers at the elementary level, as well as to result in more complex variations (upward or downward) in the different fields of teaching at the secondary level.

On the other hand, modification of pension plans and voluntary early retirement measures did not have any impact on teacher demand as those leaving their positions had to be replaced anyway, since the students could not be left without a teacher! We will see further on that massive departures instead had a marked impact on teacher supply and replacement hirings. Staff still employed after the various departures represent this supply.

Table 2 below presents projections for all permanent and part-time teachers in Québec school boards.

Table 2
Projections of teaching staff in Québec school boards, 1996-97 to 2008-09, by employment status (annual data)

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
Permanent staff:	**57 509**	**57 598**	**59 383**	**59 088**	**58 798**	**58 534**	**58 288**
1. Job creation	-576	89	1 785	-295	-290	-264	-246
2. Attrition	2 356	3 045	8 782	2 703	2 805	2 921	3 075
3. *Retirement*	*1 753*	*2 478*	*8 199*	*1 925*	*2 029*	*2 146*	*2 294*
4. Gross recruitment: 1+2	1 780	3 134	10 566	2 408	2 515	2 657	2 829
Part-time staff:	**17 092**	**16 966**	**17 355**	**17 278**	**17 218**	**17 036**	**16 981**
5. Job creation	727	-126	389	-77	-60	-182	-55
6. Attrition	2 288	2 541	6 305	2 592	2 579	2 566	2 530
7. *Net promotions*	*1 420*	*1 562*	*4 689*	*1 602*	*1 594*	*1 584*	*1 563*
8. Gross recruitment: 5+6	3 015	2 415	6 694	2 515	2 519	2 384	2 475
Net recruitment: 4+8-7	3 375	3 987	12 571	3 321	3 439	3 457	3 740

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Permanent staff:	**58 119**	**58 000**	**57 924**	**57 710**	**57 327**	**56 749**	**56 168**
1. Job creation	-169	-119	-76	-214	-383	-578	-581
2. Attrition	3 177	3 244	3 231	3 138	3 031	2 901	2 776
3. *Retirement*	*2 387*	*2 448*	*2 432*	*2 341*	*2 241*	*2 121*	*2 012*
4. Gross recruitment: 1+2	3 008	3 125	3 155	2 924	2 648	2 323	2 195
Part-time staff:	**16 948**	**16 927**	**16 916**	**16 870**	**16 784**	**16 650**	**16 515**
5. Job creation	-33	-21	-11	-46	-87	-134	-136
6. Attrition	2 523	2 522	2 522	2 524	2 518	2 504	2 481
7. *Net promotions*	*1 557*	*1 554*	*1 551*	*1 550*	*1 545*	*1 536*	*1 522*
8. Gross recruitment: 5+6	2 490	2 501	2 511	2 478	2 431	2 370	2 345
Net recruitment: 4+8-7	3 941	4 073	4 114	3 853	3 535	3 158	3 018

Note: Job creation, attrition, net promotions and recruitment correspond to movements of staff from the previous year to the current year.

This table makes it possible to study interactions between teacher demand, supply and recruitment requirements. The table should be read from top to bottom, according to the line numbering.

- Figures in the **first line in bold** indicate the demand for permanent teachers.
- Line 1 – successive variations in demand represent job creation. There may be an increase or a decrease in the number of jobs created; in 1997-98, job creation was abnormally high because of the additional demand for teachers for the new full-time kindergarten for five-year-olds.

- Line 2 – attrition represents the number of persons that must actually be replaced; it is the difference between personnel departures and returns. In 1996-97, new retirement conditions for RREGOP members increased attrition; the following year, exceptional measures related to voluntary early retirement had the same effect.
- Line 3 – retirements are already included in the calculation of attrition, of which they form the main constituent, but it is important to note that personnel departures occur at all ages and for a variety of reasons.[1]
- Lines 4 and 8 – gross recruitment is the sum of attrition and job creation. It corresponds to new staff hired from part-time staff or the active pool.[2]
- Figures on the **second line in bold** indicate the demand for part-time teachers.
- Lines 5 and 6 – job creation and attrition can be explained in the same way for part-time and permanent staff.
- Line 7 – net promotions correspond to the movement or promotion of part-time staff into full-time permanent positions, from which returns have been deducted; net promotions reduce recruitment requirements for permanent staff.
- On the last line, net recruitment is the sum of the gross recruitment for both employment statuses, from which net promotions have been deducted.

A diminishing teaching force

The data in the table indicate that the teaching force is decreasing, but at a slower pace than student enrolments. In effect, the figures in bold in Table 2 show that, even though enrolments will decrease by 6% by 2008-09, permanent and part-time teaching staff will decrease only by 2% to 3% during the same period. Permanent staff should decrease by 1 340 teachers and part-time staff by more than 575 teachers (if the portion of part-time staff remains the same) from 1995-96 to 2008-09.

Moreover, there was a significant increase in the teaching force in 1997-98, caused by the new full-time kindergarten. The reduction in teaching staff through 2008-09 is therefore even greater if 1997-98 is used as the reference year: -5.4% (-3 215) permanent teachers and -4.8% (-840) part-time teachers; the parallel with student enrolments is thus easier to make, with teaching staff decreasing by 5.4% during these years.

During the period studied, attrition will come into play for approximately 3 000 permanent teachers and 2 000 part-time teachers (much more mobile), and the result will be a net recruitment of more than 3 000 teachers, perhaps even more than 4 000 per year in 2003 and 2004.

In 13 years, 80% of permanent teachers and more than twice the number of part-time teachers will be replaced

In spite of the exceptional number of departures in 1997-98, attrition will nevertheless affect 2 700 permanent teachers the following year. In fact, we can generally summarize the impact of voluntary early retirement measures by the following statement: three years of retirement are condensed into one year. If we add the attrition values for 13 years of projections, close to 80% of the number of permanent teachers in the school boards in 1995-96 and more than twice the number of part-time teachers will be replaced!

The essentials of teaching force mobility have been modelled for our projections. We can observe part of these movements by reading Table 2 in the following way. Let us consider the observation data and the projections for the first year, 1996-97. To the 57 509 teachers who are permanent, 89 must be added to meet the demands for 1996-97, that is, 57 598 persons. But those who left their positions also need to be replaced; they are represented here by the attrition of 3 045 teachers (including 2 478 retirements), hence a gross replacement hiring of 3 134 teachers. Because our education system would not be able to function without part-time staff, we must also consider this group. In 1996-97, the demand for part-time staff decreased by 126 compared with the previous year, thereby bringing down recruitment requirements by the same number. However, this segment of the teaching force is much more mobile and 2 541 teachers (attrition) must be replaced. Part of the 2 541 left their positions (see Note 1 on page 5), but 1 562 were made permanent employees, thereby reducing recruitment requirements for

1. Teachers leave their positions for different reasons: departure from the school board, transfer to another employment category (e.g. becoming a manager or non-teaching professional for the school board), change in employment status within the same field of teaching or to another field. Deaths are included in departure from the school board.

2. Persons who are legally qualified to teach and are assigned to another personnel category are considered as being available for a qualified position for the purpose of the model for regulating pre-service teacher education programs; they are therefore part of the active pool.

permanent staff. Lastly, 3 987 teachers would have been hired to meet the 1996-97 staffing requirements, that is, the sum of the gross recruitment of permanent staff and part-time staff, from which are deducted net promotions of part-time staff who became permanent employees.

The fine analysis of teacher mobility[1] and the modelling of projections allow for a better comprehension of recruitment requirements. A large part of the hiring is done "internally", that is, those hired to teach for a particular year, regardless of whether they are permanent or part-time, already worked in a school boards the previous year. This was the case for nine out of ten permanent teachers and seven out of ten part-time teachers.

The various departures are in fact more numerous than the attrition described in Table 2. In effect, in a short one-year period, teacher departures are often followed by returns. The attrition expressed in Table 2 corresponds to the number of persons that must actually be replaced and not to the total number of departures.

Complex mobility and a great deal of "internal" movement

We stated earlier that the projections have been broken down into eight fields of teaching. Teacher demand changes differently for each field, and the composition of each field also affects these changes. The various departures and hirings are different according to the age, gender and pension plan of teachers.

All the fields of teaching will experience a decline in staff from 1995-96 to 2008-09, except for language of instruction, where there will be an increase of 10%. The non-recurrent rise in staff for preschool education in 1997-98 will be followed by a continuous drop in staff. Staffing requirements for the fields of secondary specialties and vocational education[2] will remain constant, while for elementary education and special education, they will decrease by 5%, and for mathematics and science, they will decrease by 9%. The table below illustrates, for even-numbered years only (to make the table easier to read), expected trends with respect to the number of teachers required for each field of teaching.

Table 3
Projections of permanent and part-time teaching staff in school boards and private schools, by field of teaching, 1996-97 to 2008-09

Field of Teaching	1995-96	1996-97	1998-99	2000-01	2002-03	2004-05	2006-07	2008-09
Special education	8 827	8 908	8 810	8 600	8 573	8 601	8 524	8 317
Preschool education	3 698	3 723	5 694	5 412	5 265	5 267	5 269	5 272
Elementary education	26 199	26 317	27 045	27 230	26 548	25 492	24 959	24 850
Mathematics and science	8 530	8 387	8 129	7 590	7 731	8 038	8 051	7 764
Language of instruction	6 239	6 117	5 947	6 650	6 770	7 027	7 037	6 796
General education[3]	9 114	8 928	8 605	7 573	7 731	8 069	8 082	7 759
Specialties[3]	13 893	13 778	13 675	13 982	13 967	14 032	13 919	13 592
Vocational education	3 957	4 238	4 246	4 246	4 246	4 246	4 246	4 246
Total	80 457	80 396	82 151	81 283	80 831	80 772	80 087	78 596

We can see that the fields of language of instruction, general education and mathematics and science will each experience, toward the year 2000, sudden upward and downward fluctuations in staffing requirements. How do we account for this? First, it should be remembered that as we saw in Graph 1, the secondary school teaching force will decrease until the beginning of the year 2000, which will result in a reduction in the teaching staff required for certain fields of teaching.

1. Table 410 of SIDE (regulatory aspect) shows the mobility of permanent and part-time teachers, as well as of back-up staff.
2. The projection model is based here on an estimate of students in vocational education where enrolments are kept at the same level.
3. The fields of general education and specialties appear in the appendix and are broken down according to each specialty concerned.

Then, curriculum reform[1] (taken into account in our projection model for 1999-2000 for elementary education and for 2000-01 for secondary education) will affect these fields of teaching.

In Table 3, private school teachers total approximately 5 800, that is, slightly more than 7% of the total teaching force. Their numbers are even greater when only secondary education is considered because they represent roughly 10% of the total teaching force.

Table 4[2] presents several indicators related to trends in projections of teaching staff by field of teaching. Age indicators make it possible to observe the aging and renewal of a field: average age, and the proportion of teachers under age 30, and age 50 and over. The proportion of women (in relation to the total number of teachers) reveals that the profession continues to be female-dominated.

Table 4

Several indicators, by field of teaching, of the projections of teaching staff in school boards, 1995-96 to 2008-09

Indicator	Permanent or full-time staff	Part-time staff
Average age	– in continuous decline, from 45.8 in 1995-96 to 42.7 in 2007-08 – the highest: 50 in vocational education – the lowest: 43.5 in special education	– stable at 36.5, convergence towards 36 due to the input model – the highest: 40 in vocational education, but is dropping – the lowest: 33 in special education
Proportion of teachers under age 30	– 6% in 1995-96, 12.5% in 1997-98, 8.5% in 2008-09 – close to 10% in special education – less than 1% in vocational education	– from 34% to 36% of total teaching force – 50% in special education – 45% in mathematics and science – 9% in vocational education
Proportion of teachers age 50 and over	– 34% in 1995-96, 29% in 1997-98, 34% in 2000-01, 25% in 2008-09 – the lowest: 22% in preschool education – the highest: 55% in vocational education – 40% in language of instruction and mathematics and science	– from 12.5% to 13% of total teaching force – from 6% to 7% in special education, in mathematics and science, and in secondary specialties
Proportion of women	– 66%, on the rise to reach 74% at the end of the period – in 2006-07, there will be more women than men in all fields, except vocational education	– 74%, stable due to the input model – in 2006-07, there will be more women than men in all fields, except vocational education

A slow rejuvenation of an aging teaching force

Teachers in Québec school boards will be at their oldest between 1995-96 and 2000-01. Why this five-year interval? Because the average age was at its highest in 1995-96, but the proportion of teachers aged 50 and over continues to grow. Obviously, the early retirements in 1997-98 reduced the number of teachers aged 50 and over, from 36% to less than 29% of the permanent teaching force, but this was only temporary and the proportion will climb to 34% in 2000-01 before a permanent decline sets in. At the same time, the proportion of young people under age 30 has benefited by the hiring that resulted from early retirements, but the process for becoming permanent is so lengthy that the number of teachers under age 30 already started to decline in 1998-99.

The average age of teachers who become permanent (full-time) each year is roughly 34, while it is almost 32 for part-time staff. Almost three quarters of these new employees are women. These values have been used for the duration of the projection because they have been stable for several years now.

1. The curriculum reform changes the subject-time allocation for elementary and secondary education. The surplus or shortage of teachers in certain subject areas will in large part be compensated for by moving staff around in the various fields of teaching.
   At the elementary level, the most important change is the teaching of English as a second language starting in Elementary III, which will result in a one-third increase in the staff required for this field. Because this teaching time has been taken away from elementary school teachers, there will be approximately 2% fewer of them. Our model takes into account the new subject-time allocation as of the 1999-2000 school year.
   At the secondary level, the number of teachers for French, language of instruction (+20%) and French as the second language (+30%) will increase, and will in part be offset by the decrease in science and technology teachers–we have not taken into account here the Minister's recent intentions announced well after our calculations were done–and the decreases in other general education fields. The increase in social science teachers (+20%) should also be compensated for by a decrease in the number of teachers required for the other general education fields. Our model takes into consideration the new subject-time allocation for secondary education as of the 2000-01 school year.

2. Table 4 summarizes the information in Tables 4a and 4b that appear in the appendix.

If we take into account the fact that a student earns a bachelor's degree in education at age 27 on average,[1] we can observe that access to the teaching profession on a full-time or part-time basis can take five to seven years!

Because new teachers are hired after some leave, the proportion of women in the total teaching force will tend to increase, to settle around 73% to 74%. In 2006-07, there will be more women than men in all the fields of teaching, except in vocational education.

Retirements account for at least two thirds of all departures of permanent staff

Why are teachers leaving? Retirement is the primary reason for permanent teachers: accounting for half of the departures in 1991-92, retirements quickly rose to almost two thirds in 1994-95. Then in 1995-96, new retirement conditions for RREGOP members resulted in the number of retirements representing 74% of all departures, and in 1996-97, 90%! Retirements are, however, expected to decline rapidly and fluctuate between 62% and 66% through 2008-09.

On September 30 of their last year of teaching, women who retired were on average slightly older than 55 years of age and men were 57 years of age. Voluntary early retirement measures temporarily brought down this average age to 53.7 for women and 55.2 for men.

Other departures concern teachers who leave the school boards, at the rate of 500 to 600 teachers per year. The average age for women is approximately 47 and for men, 51. Also, almost 400 other teachers change status or employment category each year; on average, they are 40 to 43 years old.

Each year, 20% of part-time staff leave the school boards and 10% become permanent

Most part-time teacher departures are a result of a change in status: they become permanent (approximately 10% annually) and others become back-up staff. Approximately 20% of part-time teachers leave the school boards each year. On September 30, 1995, women who changed status were slightly older than 34 years of age and men, 33 years of age. Women who left part-time teaching and who were not employed by a school board the following year were on average 37 years old, and men, 35.5 years old.

Lastly, relatively speaking, part-time teachers were much more mobile than permanent teachers. In effect, if the exceptional number of departures in 1996-97 is not taken into consideration, the attrition rate (or the proportion of the teaching force that actually needs to be replaced) varies from 4% to 5% with respect to permanent staff, compared to 15% for part-time staff.

Significant recruitment requirements

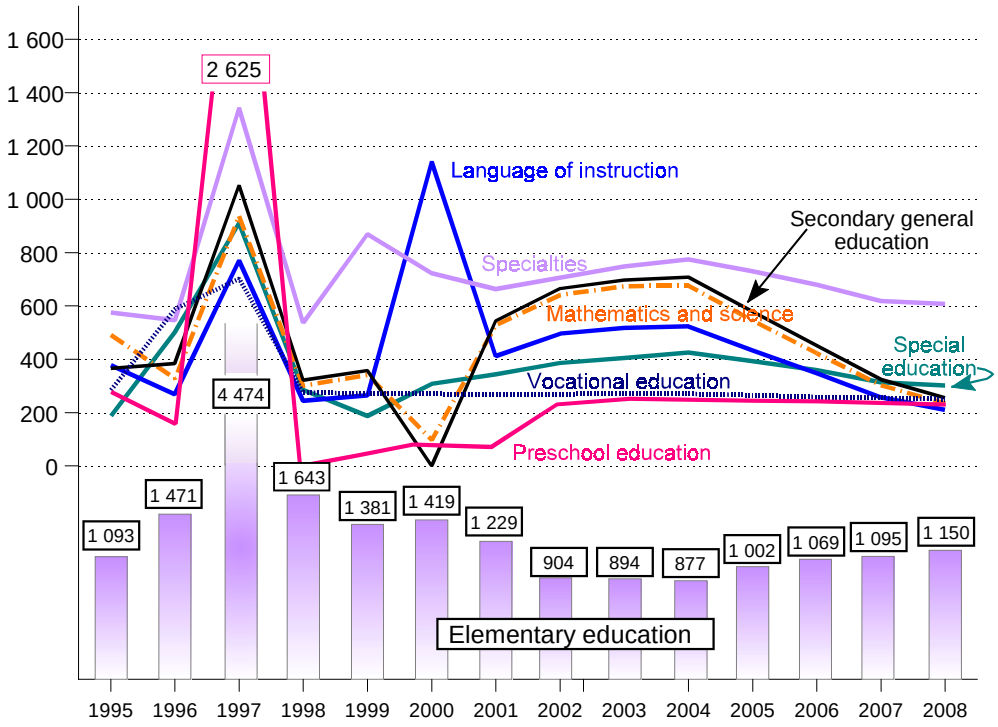
The replacement of teaching staff leads us to the topic of recruitment requirements. Just as attrition could be presented as a rate, so too can recruitment: the teachers to be hired in relation to the total teaching force. If we do not take into account the net recruitment rate of 16.4% resulting from voluntary early retirement measures, net recruitment was 4.3% in 1998-99, will be 5.5% in 2003-04 and will then drop to 4.2% in 2008-09. These rates therefore represent a hiring of 3 500 teachers in 1998-99, 4 500 teachers in 2004-05 and close to 3 200 teachers in 2008-09.[2]

We will now examine how these recruitment requirements are broken down among the various fields of teaching, using Graph 2 and Table 5.

1. SIDE, Table 300: teaching diplomas awarded from 1980-81 to 1996-97.

2. These figures do not correspond to those in Table 2 because teachers in private schools are not included in the table. Recruitment requirements for this sector will vary between 260 teachers now and slightly under 400 teachers in 2004-05, before dropping to 225 teachers in 2008-09. Secondary school enrolments are higher in the private sector than in the public sector. The general decline in enrolments, and a constant student-teacher ratio, should also be reflected in the private sector. In our projection model, we supposed that the share of private education in Québec will increase very slightly.

Graph 2
Projections of recruitment requirements for teaching staff in Québec, by field of teaching, 1996-97 to 2008-09



Graph 2 shows projections of recruitment requirements for teaching staff in Québec by field of teaching, from 1996-97 to 2008-09 (1995-96 is an observation year). Recruitment requirements for elementary education appear in the form of vertical block graphs at a different scale, given their relative importance.

The massive hirings in 1997-98 resulting from the early retirement program are very evident here. That same year, preschool education, which was offered on a full-time basis for the first time, also necessitated a hiring of 2 625 teachers; as a result, recruitment requirements for this field are expected to decline over the next four years.

Very different recruitment requirements, depending on the field of teaching

Sharp variations in recruitment requirements for 1999-2000 and 2000-01 in language of instruction and the specialties (on the rise) and in mathematics and science, and secondary general education (on the decline) are due to the curriculum reform (see Note 1 on page 7). They appear here because our model takes into account all changes in the subject-time allocation for elementary education in 1999-2000 and secondary education in 2000-01. The calendar and conditions for implementation of the reform were not known when our projections were calculated.

Toward 2005-06, recruitment requirements for language of instruction, mathematics and science, and secondary general education will decrease. This is also the case for the specialties which, contrary to the three preceding fields, are common to both elementary and secondary education.

Graph 1 demonstrates that it is very difficult to establish a parallel between teacher recruitment requirements and changes in student enrolments. Teacher demand is well represented in Graph 1, but recruitment requirements depend on the mobility of the staff in each field, the demographic structure of the staff (age, gender, pension plan) and the demand itself.

Table 5 presents a breakdown by percentage of recruitment requirements for the eight fields of teaching and gives a good idea of recruitment requirements through 2008-09.

Table 5
Recruitment requirements for teaching staff in Québec and breakdown by percentage by field of teaching, 1996-97 to 2008-09

	1996-97	1998-99	2000-01	2002-03	2004-05	2006-07	2008-09
Recruitment Requirements (teachers)	4 246	3 558	3 706	4 301	4 498	3 831	3 241
Annual breakdown of recruitment requirements by field of teaching (%)							
Special education	11.8	7.9	7.6	9.0	9.4	9.4	9.3
Preschool education	3.7	0.0	2.3	5.4	5.5	6.3	7.1
Elementary education	34.6	45.6	35.0	21.0	19.5	27.9	35.5
Mathematics and science	7.7	8.3	2.4	14.9	15.0	11.0	7.3
Language of instruction	6.3	6.8	28.2	11.5	11.6	9.1	6.5
General education	9.0	8.9	0.0	15.5	15.7	11.8	7.9
Specialties	12.9	14.9	17.8	16.4	17.2	17.7	18.8
Vocational education	13.8	7.6	6.7	6.3	6.0	6.8	7.7
All fields	100.0	100.0	100.0	100.0	100.0	100.0	100.0

It is obviously in the field of elementary education that the need for hiring is felt the most, but this need will vary enormously, going from more than 45% in 1998-99 to less than 20% of the total recruitment requirements in 2004, before climbing to more than 35% in 2008-09. Moreover, the increased need for teachers in the fields of mathematics and science, language of instruction and secondary general education during the first four or five years of the 21st century should be noted.

The specialties and special education are fields common to two levels of instruction with different student enrolment trends, such that increases in enrolments at one level almost cancel out decreases in the other; this is why their recruitment requirements are relatively stable.

Calculation of recruitment requirements for a model for regulating pre-service teacher education programs

As mentioned at the beginning of this bulletin, the calculation of these requirements is used to construct a model for regulating pre-service teacher education programs.[1] Because this training is spread over four years, future needs for teachers must be assessed so that enrolment can be limited in a program (if necessary) and, especially, so that the studies of future teachers can be directed to better meet the needs of the labour market.

Conclusion

Student enrolments will decline from 1995-96 to 2008-09 and the number of teachers (if the same student-teacher ratio is kept) will also drop. However, at the end of the 1990s, teachers will be at their oldest and, because attrition is greater than the decline resulting from a drop in enrolments, teachers will need to be hired. Also, more women are still going into teaching since close to three quarters of the teachers hired internally and more than 70% of those hired externally are female. Teaching staff have been broken down into eight fields of teaching. The staff in some fields are older, in other fields there are fewer women, and the portion of part-time staff also varies. New full-time kindergarten and curriculum reform (which affects the subject-time allocation) have reduced the decline in teaching staff that should have followed the decline in student enrolments.

Teacher replacement requirements are considerable. The various early retirement programs (since 1996) have encouraged hiring. But part-time staff are primarily being hired, and almost 10% of these part-time teachers become permanent each year. Very complex mobility and a high attrition rate result in net recruitment rates of 4.2% to 5.5%, that is, an annual hiring of 3 200 to 4 500 teachers. Even if an exceptional number of more than 12 500 teachers were hired in 1997-98, attrition was such that 3 300 teachers had to be hired the next year. If attrition for the 13-year projection period is considered, almost 80% of permanent teachers and more than twice the number of part-time teachers that were in school boards in 1995-96 will have been replaced!

There will be more variations in teacher demand in the fields of teaching at only one level of instruction than in the two fields at both the elementary and secondary levels (special education and specialties) given that student enrolment trends at each level are divergent. The fields in our projection model correspond, as much as possible, to the fields of teacher education programs in university. Projection of recruitment requirements is therefore used to limit admission to programs but primarily to guide as adequately as possible future teachers so that labour market

1. See SIDE, Table 500 and on (regulatory aspect).

needs can be met.[1]

From 1995-96 to 2008-09, there will be significant teacher turnover. The large number of departures as well as recruitment requirements will contribute to draining the labour market. Teacher education programs are now regulated and future needs estimated. The massive hirings in 1997-98 should have eliminated a large part of the considerable pool of qualified candidates who could not find part-time or full-time teaching positions.

For further information: Raymond Ouellette (418) 644-3956

Other Education Statistics Bulletins available:

- Lespérance, André. *Level of Graduation Upon Leaving the Education System*, **No. 1, November 1997**.
- Demers, Marius. *Statutory Salaries and Teaching Time of Teachers in Public Elementary and Lower Secondary Schools: A Comparison of Québec and OECD Countries*, **No. 2, November 1997**.
- Demers, Marius. *Educational Expenditure Relative to the GDP: A Comparison of Québec and OECD Countries*, **No. 3, June 1998**.
- Maheu, Robert. *Graduation from Secondary School, College and University in 1995: A Comparison of Québec and OECD Countries*, **No. 4, June 1998**.
- Beauchesne, Luc. *Secondary School and College Graduates: A Sociodemographic Analysis*, **No. 5, June 1998**.
- Saint-Germain, Claude. *Québec Student Achievement in Mathematics and Science: An International Comparison*, **No. 6, June 1998**.
- Foucault, Diane. *The Aboriginal School Population of Québec*, **No. 7, September 1998**.
- Demers, Marius. *The Return on Investment in Education*, **No. 8, November 1998**.

1. The most complete statistical review of the labour market for teachers can be found in SIDE–see the first page of this bulletin for more information.

Glossary

Employment status

Employment status defines the contract of engagement, employment security, remuneration and workload of teachers. We cannot, unfortunately, change the terminology that has been accepted for more than 30 years, in spite of its imperfections and ambiguity. In effect, terminology pertaining to status sometimes evokes the notion of duration of work, when in fact, duration of work is quite distinct from status. Permanent or full-time and part-time are the two statuses used in this study. Others exist: hourly-paid, by-the-lesson and substitute.

Field of teaching

A field of teaching is a grouping of positions in a certain number of areas of activities or specialties. Projections are broken down for nine fields: special education, preschool education, elementary education, specialties, mathematics and science, language of instruction, other areas in general education, vocational education and adult education. The name of each field corresponds as much as possible to the name of the teacher education program that leads to a position in the field.

Specialties at the secondary level are second language, physical education, music, and the arts. For the calculation of projections, adult education teachers have been added to the staff in each field.

Other employment status

Teachers who are employed in a position that does not require legal qualification to teach are grouped under the category of other employment status.

Teacher-by-the-lesson: teachers whose contract specifies the instruction that they agree to provide students; the number of teaching hours cannot exceed one third the annual maximum workload of a full-time teacher. This status is reserved for teaching in the youth sector of school boards.

Hourly-paid teacher: teachers employed directly by the school board to teach programs in adult education or vocational education, who have no written contract and who receive an hourly wage set in conformity with the collective agreement in effect in adult education or vocational education.

Substitute teacher (fewer than 20 days): persons other than a permanent teacher, hired for a period of fewer than 20 days to replace an absent teacher. For substitute teaching for 20 consecutive days or more, the substitute teacher will be paid according to the pay scale of permanent teachers. The two statuses are reserved for teaching in the youth sector.

Part-time (employment status)

Teachers with a part-time contract of engagement. These individuals are employed for an incomplete school day, an incomplete school week or an incomplete school year. They may, however, work on a full-time basis for one complete school year when they replace a permanent teacher. Part-time teachers are remunerated according to the same pay scale as permanent teachers.

Pension plan

Teachers belong primarily to two major pension plans: the **RRE** and the **RREGOP**. The Régime de retraite des enseignants (RRE) concerns only permanent teachers hired before July 1, 1973. This plan offers retirement conditions that differ according to gender, and it allows women to retire sooner than men. Less than 28% of permanent teachers contributed to the RRE in 1995-96. To the RRE, we added all other teachers who are members of a pension plan other than the RREGOP, that is, approximately 30 teachers primarily from the Régime de retraite des fonctionnaires (RRF). The Régime de retraite des employés du gouvernement et des organismes publics (RREGOP) is the pension plan of all employees hired after July 1, 1973, as well as of all those hired before this date but who transferred their rights during a transitional period in the mid-1970s. The RREGOP does not offer different retirement conditions for men and women, and it does not allow early retirement without financial penalty before age 60.

Permanent or full-time (employment status)

"regular" in collective agreements

Teachers who, being neither by-the-lesson, nor part-time, have a written contract of engagement in accordance with Appendix III-c) of the collective agreements of the Centrale de l'enseignement du Québec (CEQ), the Provincial Association of Catholic Teachers (PACT) and the Provincial Association of Protestant Teachers (PAPT). Except in the cases of availability or surplus, these teachers are employed on a full-time basis. After two years of service, teachers become permanent; however, approximately 30 teachers who are not legally qualified to teach are hired on a full-time basis during the school year. Because they occupy positions of permanent teachers, they have been included here with permanent staff.
The term "regular" has been used in the collective agreements for more than 30 years. In this bulletin, "permanent" or "full-time" was preferred.

Appendix 1

Table 3a
Projections of permanent and part-time teaching staff in school boards and private schools, for areas in the fields of general education and specialties, 1996-97 to 2008-09

Field of Teaching	1995-96	1996-97	1998-99	2000-01	2002-03	2004-05	2006-07	2008-09
General Education								
Moral and religious instruction	1 483	1 457	1 405	1 364	1 392	1 452	1 454	1 396
Social studies	2 908	2 851	2 750	3 202	3 270	3 412	3 418	3 284
Computer science	413	406	391	379	387	404	404	388
Miscellaneous, general education	4 312	4 213	4 062	2 629	2 685	2 801	2 803	2 690
Specialties								
"Accueil" and linguistic support	769	804	806	804	797	790	780	767
English as a second language	4 172	4 137	4 067	4 400	4 416	4 475	4 449	4 330
French as a second language and French immersion	1 575	1 524	1 535	1 661	1 650	1 641	1 624	1 595
Physical education	4 061	4 032	4 016	3 936	3 923	3 925	3 889	3 803
The arts	3 316	3 302	3 273	3 201	3 202	3 223	3 196	3 117

Note: The projections of these two fields are expanded by specialty and figures have been rounded off; the sum of the components of a field may therefore differ from the total for the field indicated in Table 3.

Appendix 2

Table 4a
Several indicators, by field of teaching, of the projections of teaching staff in school boards, 1995-96 to 2008-09

(details of Table 4)

Field of Teaching	1995-96	1996-97	1998-99	2000-01	2002-03	2004-05	2006-07	2008-09
Special Education								
average age	43.5	43.3	42.3	43.0	43.3	43.4	43.4	43.5
under age 30 (%)	9.7	9.6	10.1	7.7	7.5	8.0	8.3	7.8
age 50 and over (%)	25.9	26.7	23.6	28.0	29.4	29.2	28.3	27.6
proportion of women (%)	69.1	69.8	71.7	72.7	74.3	76.1	77.7	79.1
Preschool Education								
average age	44.8	44.9	40.6	41.6	42.1	42.1	42.0	42.1
under age 30 (%)	5.7	6.5	21.0	14.6	9.9	8.2	9.0	9.3
age 50 and over (%)	22.1	25.8	21.2	27.3	28.3	26.5	24.5	22.6
proportion of women (%)	99.1	99.0	98.5	98.4	98.4	98.3	98.2	98.1
Elementary Education								
average age	46.3	46.0	43.1	43.0	42.9	42.8	42.6	42.5
under age 30 (%)	4.7	6.2	13.5	12.9	10.9	8.9	8.5	8.8
age 50 and over (%)	36.1	38.6	31.4	33.5	32.2	29.3	26.2	24.2
proportion of women (%)	88.2	88.0	87.7	87.6	87.6	87.8	88.2	88.5
Mathematics and Science								
average age	46.1	46.1	44.4	44.8	43.7	42.4	42.0	42.2
under age 30 (%)	8.4	7.9	10.2	7.5	9.2	11.5	11.0	8.2
age 50 and over (%)	40.0	43.6	41.6	43.8	36.3	27.9	22.9	20.8
proportion of women (%)	37.5	38.3	41.0	42.8	45.6	48.1	49.7	50.9
Language of Instruction								
average age	46.4	46.2	44.0	42.5	42.1	41.6	41.5	41.9
under age 30 (%)	7.4	7.8	11.6	14.8	13.6	12.9	10.8	7.7
age 50 and over (%)	40.5	42.8	37.0	33.7	30.2	25.3	22.1	21.1
proportion of women (%)	59.5	60.4	63.8	66.4	68.3	69.9	71.2	72.0
General Education								
average age	47.0	46.9	44.9	45.7	44.5	43.2	42.6	42.7
under age 30 (%)	4.9	5.7	9.6	6.2	8.3	10.9	11.0	8.6
age 50 and over (%)	41.4	44.2	40.0	45.1	39.0	31.3	26.4	24.5
proportion of women (%)	38.8	39.1	40.6	41.3	43.8	46.2	48.0	49.3
Specialties								
average age	44.5	44.6	43.8	44.0	44.2	44.0	43.9	43.8
under age 30 (%)	5.6	5.7	8.1	8.4	8.2	8.5	8.6	8.2
age 50 and over (%)	25.4	27.2	27.4	31.9	34.1	34.1	32.6	30.7
proportion of women (%)	51.4	51.8	53.5	55.2	56.9	58.9	60.7	62.3
Vocational Education								
average age	50.0	47.9	44.3	43.8	43.3	42.9	42.6	42.6
under age 30 (%)	0.9	6.6	12.5	11.4	9.7	9.0	8.7	8.2
age 50 and over (%)	55.2	48.7	37.3	36.3	33.1	29.6	26.3	24.2
proportion of women (%)	31.7	32.9	33.8	35.2	36.2	37.1	37.6	37.8
All Fields								
average age	45.8	45.6	43.3	43.5	43.3	42.9	42.7	42.8
under age 30 (%)	5.9	6.8	12.0	10.7	9.8	9.4	9.2	8.5
age 50 and over (%)	34.3	36.4	31.4	34.2	32.7	29.6	26.8	25.0
proportion of women (%)	66.2	66.6	68.9	69.7	70.7	71.8	72.8	73.6

Appendix 3

Table 4b
Several indicators, by field of teaching, of the projections of teaching staff in school boards, 1995-96 to 2008-09

(details of Table 4)

Field of Teaching	1995-96	1996-97	1998-99	2000-01	2002-03	2004-05	2006-07	2008-09
Special Education								
average age	33.0	33.9	34.4	35.3	35.8	36.0	36.2	36.3
under age 30 (%)	49.8	45.1	42.7	38.0	36.3	35.9	35.7	35.5
age 50 and over (%)	6.0	7.6	8.5	10.5	11.6	12.3	12.8	13.1
proportion of women (%)	83.5	83.9	85.1	84.8	84.6	84.5	84.5	84.5
Preschool Education								
average age	35.5	36.0	34.6	35.6	36.1	36.3	36.4	36.4
under age 30 (%)	36.9	35.9	43.9	39.4	36.9	36.2	36.2	36.3
age 50 and over (%)	9.6	11.7	10.6	12.6	13.2	13.5	13.8	14.0
proportion of women (%)	97.3	97.1	95.4	95.9	96.1	96.3	96.3	96.4
Elementary Education								
average age	38.2	38.0	36.7	36.6	36.6	36.6	36.6	36.5
under age 30 (%)	33.3	33.9	38.3	37.4	36.2	35.5	35.6	35.8
age 50 and over (%)	21.1	21.4	18.5	16.8	15.4	14.8	14.4	14.2
proportion of women (%)	93.7	93.7	93.9	93.4	93.2	93.0	93.0	92.9
Mathematics and Science								
average age	34.1	34.7	35.2	35.8	35.8	35.8	35.9	36.0
under age 30 (%)	45.6	41.4	37.9	34.9	34.7	35.1	35.0	34.5
age 50 and over (%)	5.9	7.1	9.1	10.9	11.1	11.0	11.1	11.3
proportion of women (%)	52.7	54.2	55.9	56.8	57.4	57.7	57.8	57.9
Language of Instruction								
average age	38.2	37.9	37.1	36.5	36.3	36.2	36.2	36.3
under age 30 (%)	28.3	30.7	34.5	36.5	36.2	36.3	36.0	35.5
age 50 and over (%)	16.2	16.6	15.7	14.2	13.7	13.1	13.0	13.0
proportion of women (%)	81.2	80.8	80.2	79.4	79.1	78.8	78.7	78.7
General Education								
average age	35.6	35.9	36.1	36.7	36.3	36.0	36.0	36.1
under age 30 (%)	37.6	36.2	34.5	31.6	33.5	35.0	35.1	34.5
age 50 and over (%)	9.8	10.9	11.5	13.0	12.2	11.6	11.5	11.7
proportion of women (%)	62.0	61.7	60.4	60.4	60.2	60.1	60.0	59.9
Specialties								
average age	34.9	35.3	35.5	35.7	35.9	36.0	36.1	36.2
under age 30 (%)	35.4	34.7	35.7	35.7	35.3	35.2	35.1	34.9
age 50 and over (%)	7.2	8.1	9.4	10.3	11.1	11.7	12.0	12.2
proportion of women (%)	68.1	68.7	67.8	68.9	69.4	69.7	69.8	69.9
Vocational Education								
average age	40.3	38.7	37.7	37.0	36.6	36.3	36.2	36.1
under age 30 (%)	9.1	19.3	27.3	31.3	32.7	33.2	33.4	33.5
age 50 and over (%)	14.0	13.2	13.6	13.0	12.2	11.8	11.4	11.1
proportion of women (%)	44.5	43.3	42.4	41.2	40.4	39.9	39.6	39.4
All Fields								
average age	36.5	36.5	36.1	36.2	36.2	36.2	36.2	36.3
under age 30 (%)	34.0	34.2	36.4	35.6	35.2	35.3	35.2	35.1
age 50 and over (%)	12.5	13.2	13.0	13.1	12.8	12.7	12.6	12.7
proportion of women (%)	73.7	73.9	73.3	73.3	73.3	73.3	73.3	73.3