

## Education Indicators in Quebec

Robert Maheu

ministère de l'éducation du québec

In this article I describe the history, development, and organization of Quebec's educational indicators. I identify certain weaknesses and recommend using a comprehensive set of indicators for decision making. I discuss school district reactions to indicators and assess the indicators' effect on education in the province.

Dans cet article, l'auteur décrit les origines, le développement et l'organisation des indicateurs en éducation au Québec. Il identifie certaines faiblesses et recommande l'utilisation d'un ensemble complet d'indicateurs pour les prises de décisions. Il analyse en outre les réactions des circonscriptions scolaires aux indicateurs et évalue l'effet des indicateurs sur l'éducation dans la province.

Eleven years ago, the Ministère de l'Éducation du Québec (1983) published a document on the development prospects for evaluation in the education system. This document touched on all aspects of evaluation, including practices, but recognized that much still remained to be done, in terms of evaluation of the education system itself, at both the ministry and the school board levels.

At the same time, a committee of experts, given the mandate of reporting on the ministry's role and size, recommended that the ministry do less controlling and more evaluating, that is to say, focus less on standards, directives, and statutes, and more on verifying the results expected from goals. I do not know if our colleagues at the school boards feel they are subject to less control today, but they will surely agree that more evaluation is being done.

It was against this background that the idea of indicators surfaced in Quebec. The final resolution in the 1983 report on evaluation stated that the ministry would explore the possibility of producing an annual statistical report on education data. In the foreword to this report, the deputy minister entrusted the task of developing a *system of indicators* to two administrative units.

Numerous aspects of Quebec's education system are evaluated regularly. The ministry has a system for evaluating students' learning at the end of secondary school. In June 1992, for example, 24 ministry examinations were administered for the purpose of certifying studies in Secondary 3, 4, and 5. All programs are evaluated in turn. The Conseil supérieur de l'éducation<sup>1</sup> issues opinions both on specific aspects and on the general state of the education system, opinions that play a role in the evaluation and accountability of the system.

In this article I describe and discuss the indicators of the Quebec school system and its institutions.

## DEFINITION, ORGANIZATION AND SELECTION

Educational indicators are often defined as statistics on important aspects of the school system, or on its general state. Every statistic is not an indicator. For example, the total salary of teachers is not, but their average salary is. An indicator is often created by linking statistical data.

Of the various models proposed for the organization, or, in other words, the creation of categories of indicators, the simplest is the systemic approach shown in Figure 1.

A school system uses human, financial, material, and didactic resources to educate children. Students are expected to learn the knowledge, skills, and attitudes outlined in the province's goals of schooling and programs of study. School systems employ various administrative and pedagogical practices (such as the number of teaching hours by subject, or policies and practices regarding who repeats a year of school). All these activities unfold within specific contexts (e.g., student composition by socioeconomic status of parents, presence of cultural communities) that vary and that help explain why results differ given the same resources.

As a general rule, *results* indicators are considered the most important. The selection of results indicators may be preceded by consideration of or consultation on the main objectives of the school system, in which case the objectives selected are a deciding factor in the choice of indicators.

We did not, however, proceed in this manner in Quebec. In this instance (once does not make it a habit), we demonstrated a certain pragmatism. A small group of civil servants selected the results indicators, using data already available in the research reports published by the ministry. It seemed preferable to build on what

<!INSERT FIGURE 1 ABOUT HERE!>

already existed and then to make improvements. We selected indicators pertaining to graduation rates, access to higher education, and entry into the work force. The first indicators report was published in 1986 (Ministère de l'Éducation du Québec, 1986). A major deficiency was the lack of learning indicators. We have since remedied this by adding indicators based on the results of ministry examinations or obtained from student participation in national and international assessments. Quebec students took part in the 1991 International Assessment of Educational Progress (IAEP) and are participating in the School Achievement Indicators Program (SAIP) of the Council of Ministers of Education, Canada.

What to choose as *process* indicators? The various authors on this subject were far from unanimous. We decided to include indicators of student flows pertaining to aspects other than obtaining a diploma or access to higher education. So we added such categories as dropping out of school, falling behind in school, repeating a year, and reaching Secondary 4 and 5. Indicators pertinent to pedagogical management could be included here, but they are usually not available. When the information is available, it is most often of elements that do not vary from year to year and thus are less interesting for annual publications.

In developed countries, there is not a close link between the *resources* invested in a school system and the results obtained. This is evident in numerous articles, particularly Hanushek's (1986) summary of the role of production in education. Nevertheless, and even though our focus is results, one third of our publication (Ministère de l'Éducation du Québec, 1993a) deals with resource indicators. The explanation is simple: we invest a great deal in education. In the early 1980s, spending on elementary and secondary education in Quebec represented 6.1% of our gross domestic product, compared with 4.3% for the rest of Canada. School board spending per student in Quebec was 27% higher than in Ontario. Again in relation to Ontario, our student/teacher ratio was lower and the average salary of teachers was higher. The burden of education on government finances was considerable.

In the second edition of the indicators report (Ministère de l'Éducation du Québec, 1987), we added a chapter on *evaluation of learning*, an essential part of results indicators. For lack of a more reliable indicator, we used the students' results on ministry examinations. Since these examinations vary from year to year, no comparisons were made with the results of preceding years. It might, however, be interesting to compare the results of the various subgroups of students by sex or by region. When Quebec participates in international and national assessments (IAEP and SAIP, respectively), we extract indicators from them. Even though our students' results are derived from questions not based on our own programs of study, we feel these assessments are fair to everyone, or equally unfair to all, and that they provide us with a valid although partial image of the performance of our school system.

## PRESENTATION OF INDICATORS

To be meaningful, an indicator requires a certain environment and must be put into context. An indicator is often obtained through comparisons. These comparisons may be based on a stated objective if the authorities have established one. Or, the same indicator may be calculated for several years, to establish a trend. If a predetermined objective is not used, a hypothesis can be put forth; for example, the graduation rate should increase, or at the very least, should not decrease. Comparisons would therefore be made with previous observations.

We may also compare our school system with other school systems. For example, we have for a long time compared our financial investment in education with that of Ontario, not because Ontario is necessarily the norm or the ideal, but simply because this comparison helps shed light on our own choices for the allocation of resources. To avoid giving readers the impression that we suggest Ontario as the norm, we now include a comparison with the United States and we are currently completing work on a comparison with France.

It often seems useful to combine comparisons that differ with respect to time and place. As Quebec's education system is unique in many respects (such as the number of years of elementary and secondary levels (11 years) and a system of pre-university education in our colleges (CEGEPs), comparison with other school systems is always a delicate matter. Even if some of the estimates we make for these comparisons may be questioned, it must nevertheless be recognized that historical trends and developments may legitimately be compared.

Comparisons based on ministry examination results are trickier because these examinations are not the same from one year to another and are not used by other school systems. We may nonetheless present disparities by sex, language of instruction, region, and even subject. Taking the example of subject, students' results are on average generally lower in science and mathematics. Does this mean that Quebec's students are particularly weak in mathematics? The results on the SAIP mathematics assessment lead us to conclude the opposite. The best results are obtained in second language courses. Are almost all young Quebecers bilingual then? Parents do not think so. Disparities in the results by subject perhaps reflect differences in expectations and prestige, which are not the same for all areas of knowledge.

We cannot read the indicators superficially; most of all, we cannot assess the state of a school system on the basis of a single indicator, but must instead use a set of indicators covering diverse facets of the system. For example, in the IAEP study on the achievement of 13-year-old students in science, mathematics, and geography (Ministère de l'Éducation du Québec, 1992), the three provinces with the best results were Alberta, British Columbia, and Quebec. These three provinces also had the lowest graduation rates (Canadian Education Statistics

Council, 1992). Conversely, the province with the highest graduation rate ranked last among Canadian provinces in science and in geography, and next-to-last in mathematics. This leads to the conclusion that when requirements are higher, the diploma is harder to get, but the students acquire more knowledge.

In presenting our indicators, we use the following methods of comparison, choosing what we feel are the most appropriate methods in each case: (a) comparison with an objective; (b) comparison with previous years; (c) comparison with other school systems; and (d) comparison of subgroups within the Quebec population. Our indicators publication is aimed at a large, educated audience, that is, an audience closely involved with the field of education: commissioners, school administrators, school principals, teachers, and parent committees. The publication is distributed free of charge in French and in English to tens of thousands of people. We have tried to adopt a level of language appropriate to our target audience. Even though the content is quite dense, we have tried as much as possible to avoid giving technical explanations, sources of data, and calculation formulas. This information is kept on file and is available upon request. On more specific matters, such as the method used to calculate the graduation rate, we have frequently had to provide explanations and have even considered it useful to publish a simplified version of our methodology (Maisonneuve, 1989). In other cases, we extract our indicators from studies published for limited circulation to a specialized public (e.g., Demers, 1992, 1993).

We have standardized the format used to present the indicators. Each indicator takes up two pages. The right-hand page presents a statistical table, usually showing historical trends and breakdowns or comparisons. Below the table, a graph shows part of the information in the statistical table. The left-hand page contains text presenting and analyzing the data; the explanations cannot always be deduced from the table, as they are a result of more in-depth analyses that we have conducted. For example, our analysis has permitted us to affirm that the higher dropout rate in 1986/87 resulted principally from our raising the passing mark on examinations from 50% to 60%. Although this presentation of the indicators is very limiting, it makes the reader's task easier, and as we have often been imitated, we are confident we have found a winning format.

#### INDICATORS BY SCHOOL BOARD AND BY PRIVATE SCHOOL

For seven years now, the ministry has published students' results on ministry examinations by school board and by private school (Ministère de l'Éducation du Québec, 1994). Results often take the form of lists ranking school boards and private schools. In 1994, for example, school boards were ranked by their success rate. In other words, their placement on the list was based on the percentage of their students who obtained a passing mark. When school boards

are presented alphabetically, the media award themselves the task of ranking the school boards.

Most of the time, the publication causes a stir with our partners in the school boards. When the performance of the entire school system is evaluated, the school boards do not feel singled out, but this is not the case when the indicators are presented by school board. Even though readers are made aware of the various factors that may influence results, the public is first and foremost interested in results, whereas the school boards whose students did poorly claim extenuating circumstances (e.g., economically disadvantaged students, integration of students with learning difficulties).

Most administrators would like to improve their school board's ranking by being more demanding and by better preparing their students. This is the reaction the ministry hopes for. But we have also heard that some school boards have not allowed their weakest students to write the ministry examinations; they hope to improve their ranking by having only their best students write the examinations. The minister had to step in to counter these practices.

This type of behaviour clearly illustrates one danger of indicators. If your performance is assessed on the basis of a single indicator but you are pursuing numerous objectives, you may be tempted to sacrifice certain important objectives to focus on the one factor used to evaluate you. In my opinion, the solution is not to give up on evaluation and indicators, but, on the contrary, to establish more. We need a system of indicators, that is, a set of indicators covering all important aspects of the state of a school system. We must acknowledge, however, that it can become burdensome or very costly to collect data for certain indicators. In this domain as in others, we must compromise.

This is one of the reasons, but by no means the only one, that in 1992 we began publishing graduation rates and school-leaving rates without a diploma by school board. In these tables, school boards are listed alphabetically. Personally, I would prefer that the school boards be ranked according to variation in their graduation rates for two successive years. The school board that increases its graduation rate the most would then appear first.

In the tables of graduation rates by school board, we added a process indicator on the proportion of students entering secondary school late, and a context indicator on the proportion of students enrolled in private schools. An advisory committee, in which representatives from the major educational associations participate, has recommended that we also include an indicator on socioeconomic context. The most recent publication also included ministry examination results by school, and schools were ranked according to their success rate. Our main partners deplored the lack of context indicators (Centrale de l'enseignement du Québec, 1994; Fédération des commissions scolaires du Québec, 1994).

Very detailed tables on school-leaving rates without a diploma for each secondary school are sent to the schools concerned, but they are not published. These tables are appreciated and we have been asked for even more information.

## ASSESSMENT OF OUR EXPERIENCE WITH INDICATORS

As head of the unit responsible for publishing indicators on Quebec's school system and for preparing indicators for graduation rates and school-leaving rates without a diploma by school board and by school, my assessment of the situation is obviously subjective. Let us begin with the objections. The Fédération des commissions scolaires du Québec (Quebec school board federation) has objected to our education price index, which we have developed on the basis of trends in the cost of a basket of goods purchased by the school boards. Because of the Quebec government's budget policies, in particular, salary restrictions during the 1980s, this education price index has increased more slowly than the consumer price index, which is based on a basket of goods purchased by an average Canadian household. For example, according to our index the average government subsidy per student in constant dollars has varied very little in the last 12 years, whereas according to the consumer price index it has decreased. The ministry claims "budget rationalization" has had more effect on the salary of personnel than on the actual resources per student or on the financial situation of school boards. To date, we remain firm in this convictions.

Some school boards have questioned the way we measure the dropout rate. This has led us to change our terminology and we now speak of the "school-leaving rate for students in the youth sector leaving school without a diploma." The results, however, have not changed. We have provided some school boards with lists of the names of their "non-graduates." So far, no errors have been found in these lists, which are handled with great care to ensure confidentiality. Those school boards now use the lists to try to convince their dropouts to come back to school.

What effect have the indicators had? We sometimes hear that they are used to justify budget cuts. As I mentioned earlier, our financial investment in elementary and secondary education at the beginning of the 1980s was higher than that of other North American school systems. Measures were adopted to control spending. Today, most of our indicators indicate that our financial investment is lower than that of other North American school systems (spending/gross domestic product, school board operating expenses per student, average teacher's salary). We still publish these indicators. School boards and unions have for a few years used them to justify some of their demands.

A few years ago, one of our indicators sounded an alarm—the dropout rate in Quebec was on the increase because our standards had increased. In spite of the annoyance this indicator caused the authorities, it was published as usual. The Centrale de l'enseignement du Québec, our main teachers' union, embarked on a campaign to make this issue a priority for the Quebec government. The campaign was successful because in June 1992, the minister of education made public a plan of action for educational success which put forth the objective of

ensuring that 80% of Quebecers under 20 years of age leave secondary school with a diploma.

We chose some results indicators because of a lack of official objectives. This pragmatism has proved useful because the trend made evident by one of our indicators, the secondary graduation rate, has spurred the Quebec government to establish an official objective.

Generally, I would say that the publication of indicators has contributed to developing a shared view of the performance of our school system within Quebec's educational milieu. Groups as diverse as school boards, teachers' unions, the media, and the Conseil du Trésor (Quebec treasury board) constantly refer to our indicators because they have a great deal of credibility. Certainly, the various partners' interests sometimes conflict; the diagnoses, however, are similar even if the proposed solutions differ.

#### WHERE DO WE GO FROM HERE?

The most recent literature released by the political parties of Quebec and by the Ministère de l'Éducation (1993b) reveals a common purpose: to decentralize education in Quebec and to have the ministry focus on essential functions, such as the setting of objectives, planning, evaluation, and accountability. It is also expected that school boards will be asked to evaluate themselves and to become accountable. Education is moving toward greater accountability, and thereby, improvement.

#### NOTE

<sup>1</sup> The Conseil supérieur de l'éducation (Quebec superior council of education) is a consultative organism, independent of the ministry but linked to the minister, that must be consulted on all projects to amend statutes. It informs the public what it recommends to the minister.

#### REFERENCES

- Canadian Education Statistics Council. (1992). *A statistical portrait of elementary and secondary education in Canada*. Toronto: Council of Ministers of Education, Canada and Statistics Canada.
- Centrale de l'enseignement du Québec. (1994). *Le palmarès des écoles : un exercice douteux, voire dangereux*. Quebec: Communiqué TELBEC.
- Demers, M. (1992). *L'effort financier pour l'enseignement primaire et secondaire. Une comparaison Québec–Autres provinces–États-Unis de 1981–1982 à 1991–1992*. Quebec: Ministère de l'Éducation du Québec.
- Demers, M. (1993). *Indice de prix des intrants des commissions scolaires de 1972–1973 à 1992–1993. Guide méthodologique*. Quebec: Ministère de l'Éducation du Québec.
- Fédération des commissions scolaires du Québec. (1994). *Classement des commissions scolaires aux examens du MEQ : la FCSC déplore que le MEQ s'en tienne encore à aligner des chiffres complètement désincarnés de la réalité scolaire*. Quebec: Communiqué TELBEC.
- Hanushek E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature*, 24, 1141–1177.



- Maisonneuve, D. (1989). *Developing student flow indicators based on data from one year*. Quebec: Ministère de l'Éducation du Québec.
- Ministère de l'Éducation du Québec. (1983). *L'évaluation dans le système éducatif, cadre général et perspectives de développement*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1986). *Educational indicators for the elementary and secondary levels*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1987). *Educational educators for the elementary and secondary levels*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1992). *Education indicators for the elementary and secondary levels*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1993a). *Education indicators for the elementary and secondary levels*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1993b). *Moving ahead*. Quebec: Author.
- Ministère de l'Éducation du Québec. (1994). *Graduation rates by school board and results on the June 1993 ministry examinations by school board and by school*. Quebec: Author.
- 

Robert Maheu is Directeur des statistiques et des études quantitatives, Ministère de l'Éducation du Québec, 1035 de la Chevrotière, Québec (Québec) G1R 5A5.