Using performance data to report and analyse system outcomes: issues and opportunities

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Abstract

This paper will explore options for reporting and analysing Year 12 student participation and outcomes. With increasing public pressure for greater disclosure of school performance information, it is highly appropriate that the QSA examine its own data together with other available data, to identify ranges and patterns of performance. These data prompt questions about system and school effectiveness.

The QSA holds a rich resource of information about Year 12 participation and performance in Queensland Schools. Linking the QSA’s data to other data including Queensland Tertiary Admissions Centre (QTAC) data and Queensland Department of Employment and Training (DET) data allows profiling of schools and school systems in terms of student participation, performance and pathways. These data are potentially useful for consideration at school and system levels to affect school improvement.

The paper will present preliminary analysis of a range of information for all students who completed a Senior Certificate in Queensland schools in 2002. It will examine the flow of students into University via QTAC and into vocational education and training (VET) providers (TAFE Colleges and other publicly funded private VET providers) in 2003. The analysis will examine activity, output and outcome data and their interrelationships, and raise issues for further investigation.

This paper presents a public policy case study of a Queensland educational reform. It gives an overview of approaches for using a range of QSA Year 12 school performance, student completion and outcomes data for school improvement and to enhance system effectiveness.

Earlier this year the Queensland Minister for Education and the Arts released a Schools Reporting: Consultation Paper with the objective of finding out what information about school outcomes the broader community needs. The Minister’s consultation paper was an important input into the government’s deliberations on determining how to improve school reporting to students, parents, school communities, employers and the wider community.

The recommendations in the Minister’s Consultation Paper were designed to build a stronger evidence-based capacity for Queensland schools and education systems and complement proposed Australian Government changes to reporting to students, parents, school communities, employers and the wider community.

The focus of this paper is the development of processes for the QSA to provide better support for the core business of schools – enhancing student learning, in the broadest possible context, and ensuring that educational system effectiveness is better supported by the further development of QSA products and services.
The QSA holds a rich resource of information about Year 12 performances in Queensland Schools. Linking QSA data to other data including Queensland Tertiary Admission Centre data and Department of Employment and Training data allows schools and education systems to examine student performance and pathways data in detail.

This paper and the attachments represent a journey through some of the intersections between the Queensland Department of Education and the Arts, the QSA and Queensland’s political processes. One aspect of the Queensland Minister’s discussion paper was public reporting of Year 12 performance data. The policy question derived from analysis of performance data is: What data should be used by whom to achieve what purpose, given that there is an extensive raft of data available from various points in time, providing various viewpoints of what happens with graduating cohorts of Year 12 students?

The public reporting of Year 12 and other student performance data is an important component of a much broader -public policy debate about the use and purpose of a broader range of student and school performance data. This debate has been a somewhat contentious affair and Australian jurisdictions and authorities are adopting different stances and strategies. The following examples illustrate the divergence of views on the issue.

The Victorian Government has established a recent history of publishing Year 12 performance data for all its schools in alphabetical school order.

A recent issues paper by the Government School Education Council ACT, entitled School Performance Information: An Issues Paper for the ACT Minister for Education and Training, June 2004 canvassed a range of views on the topic. The ACT Schools Performance Information paper states that:

The publication of school results will not necessarily improve overall school outcomes; in fact it can undermine school improvement.

Many studies on the impact of reporting school results are flawed in their methodology in that they fail to take account for the influence of contemporaneous changes in education policies, programs and funding. They also fail to account for the detrimental impact of reporting standardized test outcomes on some groups of students and on other areas of student learning not measured by the tests. Overseas research studies show that schools have responded to the publication of school results in ways that artificially boost their comparative results. Many of these responses detract from overall student learning. They include:

- ‘cream skimming’ high achieving students from other schools
- reducing time and resources devoted to student learning in curriculum areas and experiences not subject to standardised tests
- devoting more time and resources to students who are close to reporting benchmarks at the expense of both high achieving and very low achieving students
- finding ways to exclude low achieving students from the tests
- cheating by helping students in tests and changing answers.

The Australian Minister for Education, Science and Training, Dr Brendon Nelson, published a National Framework for Schools in November 2003. A key part of the agenda is that schools will have to publish information about their performance as a condition of funding for the next few years. Dr Nelson recently outlined, in the Third Reading speech for the States Grants (Primary and Secondary Education Assistance) Legislation Amendment Bill 2004 (p.32125), a range of information that schools would be required to publish.
The government will also demand that all schools — Catholic, independent and government — will report to parents the results of national benchmark tests in years 3, 5 and 7 in literacy and numeracy. We want to make sure that teacher qualifications and the ongoing professional training of teachers is also publicised at the school level. We want to know how much money is being spent on our teachers for their ongoing training. We also want to know about teacher retention rates.

We are also requiring publication of

- teacher and student attendance
- the average year 9 and 10 results delivered by the school
- the average year 12 results
- what proportion of students went from the school to apprenticeships, to training, to jobs and to university.

It is also important that we start to get plain language reports about how our kids are going. I have received thousands of reports from parents across Australia that are absolutely meaningless, written in politically correct jargon that means nothing to any parent. Most particularly Aboriginal parents are concerned that, to their great grief and consternation, their kids get to early secondary school and are barely literate, yet they have had meaningless reports throughout primary school. What does it mean to get a report that says your child is almost achieving or is achieving? What does it mean to get a report that ticks a box that says ‘Competent: usually, sometimes or not yet’?

The Australian Government is putting into this legislation the requirement that schools will deliver reports that are timely, presented early in the year, at least twice a year, and that are written in plain language.

We want to make sure that students are ranked in quartiles. If my son is in the bottom 25 per cent of the class, somebody has got to be there, but I want to know about it, because if he is there it is likely he has got a problem and I have a right as a parent to know something about that.

As I said in relation to the legislation earlier, the government is determined that information will be published at a school level on

- the literacy and numeracy performance of the school;
- teacher retention and attendance;
- teacher professional development and investment in teacher training;
- student attendance;
- median year 9, year 10 and year 12 results; and
- career leaver destinations for the school.

That information can be published in a number of ways, such as on a web site, in a newsletter, on signage inside or outside the school, or by advertising in local newspapers.

It is interesting that there is a culture of resistance to schools actually publishing information. I had the experience of attending a primary school several months ago where the principal said that it would be wrong to publish information about the school’s performance. In fact, the principal told me that were the community to know how poorly the school was performing it would be closed down within a year. She further added that the task of the school was to provide hope to students. I said to that principal — whose school, by the way, I found to be a very good school — that we need to equip our children with more than hope as they move from primary to secondary school and that, if the school is performing so badly, once discovering this is the case parents would presumably put pressure on the relevant state government, and also the federal government, to find out exactly why this is occurring and what could or should be done about it.
The Queensland Government recently endorsed changes to the way that schools report on student and school performance. A copy of the Queensland Government, Department of Education and the Arts, flyer entitled Changes to Schools Reporting, October 2004 is included as Attachment A.

Annual publication of Year 12 data by school, plus a destination survey
In Term 1 2006, the Queensland Studies Authority will release 2005 summary information on each school that has students in Year 12. The data will include the breadth of subjects offered, the number of students studying vocational subjects and the number who gained vocational qualifications or an Overall Position (OP) sufficient to gain entry to tertiary studies. This data will be published in Queensland newspapers, subject to conditions. Early in 2005, each school will receive its 2003 and 2004 Year 12 data.

The Queensland Government is also considering a proposal to conduct an annual survey of the study, employment and other destinations of Year 12 students in the year after leaving school.

There are divergent views on the role of reporting schools performance information to the public. In summary, most of the research on the relationship between student and school performance and public reporting is contested.

Within the context of the inevitable political manoeuving, by Ministers and Governments in identifying where they wish to be positioned with regard to public reporting of schools performance information, the Queensland Ministers discussion paper provided an opportunity for extensive consultation with key stakeholders. Following the conclusion of the consultation paper a Task group involving all key stakeholder groups was tasked with providing advice to the Minister on the area. Some indices which were identified as part of the consultation and taskforce processes include the following:

**Participation measures**
1. Year 12 Enrolments
2. Enrolments in the Certificate of Post-compulsory School Education (CPCSE) (for students with a disability and high ascertainment levels)
3. Enrolments in school based VET
4. Students enrolled in school based Apprenticeships and Traineeships
5. The number of students eligible to obtain a Tertiary Entrance Statement - also referred to as OP eligibility. (To obtain a Tertiary Entrance Statement students are required to complete five Authority subjects or equivalent. The other requirements are completion of Year 12 as a full-time student and sitting for the Queensland Core Skills (QCS) Test.)
6. The number students sitting the QCS test

**Attainment measures**
1. The Number of students gaining a Senior Certificate and obtaining a Tertiary Entrance Statement – without a VET Qualification
2. The Number of Students gaining a Senior Certificate and obtaining a Tertiary Entrance Statement – with a VET Qualification
3. The Number of Students gaining a Senior Certificate and not obtaining a Tertiary Entrance Statement – without a VET Qualification
4. The Number of Students gaining a Senior Certificate and not obtaining a Tertiary Entrance Statement – with a VET Qualification
5. Number of Students attaining a Certificate of Post-Compulsory School Education
6. Percentage of students Tertiary Entrance Statement in OP bands 1 to 15 (representing approximately the top 80 per cent of OP eligible students who gain a tertiary offer through QTAC in the year after graduation.)
7. Number of students obtaining VET Certificates
8. Number of students obtaining school based apprenticeships or traineeships or making significant progress towards obtaining an Apprenticeship

**Outcome measures**

1. Percentage take up rate into tertiary education via QTAC

This process culminated in a Queensland Cabinet decision to adopt a reporting framework which is included in Attachment A.

With increasing public pressure for greater disclosure of school performance information, it is highly appropriate that the QSA examine its own data together with other available data to identify patterns and ranges of performance.

An example of the richness of these data is illustrated in Figure 1 which shows the flow of 2002 Senior Certificate graduates into education and training in 2003.

**Figure 1: Enrolment Rates of 2002 Year 12 Graduates with OP in 2003**

![Figure 1](image-url)

Figure 1 examines a range of information for all students who completed a Senior Certificate and gained an OP in Queensland schools in 2002 and examines school level performances and the direct flow of students into University via the QTAC and into VET providers (TAFE Colleges and other publicly funded private VET providers) in 2003. This preliminary analysis of the data provides a useful examination of sector, locality and student characteristic variables which warrant further investigation.
Figure 2: The profile of Year 12 2002 Queensland School Students Enrolled in TAFE/VET in 2003 by OP with and without VET in School

Figure 2 illustrates that there are some students who entered TAFE/VET after studying VET in school at all OP levels. The largest numbers of Year 12 graduates who studied VET in Schools and continued onto TAFE/VET in the following year gained OP 16 and OP 18.

Attachment B provides detailed analysis of some Year 12 participation measures, attainment measures and outcome measures. All performance measures exclude VISA students.

The analysis presented in Attachment B suggests that there are a range of data supports that the QSA can provide schools and education systems to focus debate on school improvement and system effectiveness. The analysis of Queensland’s Year 12 performance data suggests that the variation in student performance can provide a very useful starting point to examine exemplar or high levels of performance and encourage others without high levels of performance to learn from their colleagues and peers.

The QSA’s support for all Queensland schools has resulted in a shift of emphasis towards school improvement and system effectiveness. This focus on school improvement and system effectiveness is about enhancing schools capacity to educate all their students. The literature on school improvement suggests that all schools can further improve because the conditions under which adults educate, and young people learn, are always changing. This paper documents some of the strategic repositioning which enables the QSA to provide better support for the core business of schools – enhancing student learning, in the broadest possible context. Attachment C provides a World Bank summary of the history of school effectiveness research.

There are many policy issues, which derive from the World Bank’s approach to better support school improvement and system effectiveness. These include: provision of evidence of future iterations of the Senior Certificate could be constructed; the impact of students who obtain a Senior Certification and obtain a Tertiary Entrance Statement on the learning pathways of Year 12 school graduates; and the impact on school practices and curricula offerings on student pathways and graduate career decisions post school.
The World Bank research identified five groups of school effectiveness factors:

- supporting inputs
- enabling conditions
- school climate
- teaching & learning processes
- student outcomes

School effectiveness is increasingly built on a set of beliefs that the school is the centre of improvement. The European Commission employed a research team to build and test a framework for effective school improvement. Reezigt, G.J. edited a report entitled A Framework for Effective School Improvement: Final report of the ESI project July 2001 which concluded with the following:

Effective school improvement requires school level processes aiming to enhance the quality of instruction in classrooms. Individual teachers can never promote lasting changes in the school. The school organisation may add or subtract value to that of its individual members. In schools with little team collaboration, we might find a large variation in the performance of pupils. In a well-led and managed school the chances of seeing less variation and greater consistency across the schools are higher. In this way there is a ‘school effect’, adding value to that of individual teachers.

The challenges for organisations such as the QSA, along with many of the organisations that are here at this round table, is the provision of systemic goods and services that enhance student learning and school effectiveness.

**Areas for further investigation and action**

Many of the approaches for better supporting school improvement and system effectiveness outlined in this paper warrant further research by QSA and potential liaison with relevant education and training authorities to facilitate collaborative / diagnostic approaches to allow student and school performance issues to be explored in detail.

Potential intervention and/or policy positions could be proposed to increase quality and close the performance gap especially focusing on interventions which improve levels of performance and celebrate high or preferred types of performance.

To ensure joint ownership of issues and research findings, it is essential that the collaborative nature of this research is fully explored with QSA’s partners, in particular Education Queensland, the Catholic Education Commission, and the Association of Independent School Queensland. This will necessitate the development of appropriate Memoranda of Understanding (MOU’s) and protocols, for sharing data on a confidential basis.

The comprehensive approach of using Year 12 performance data has the capacity to provide the QSA with a range of information to enhance its “quality” and “educational leadership” strategic objectives now incorporated into its strategic plan.

Additional research is required to map the range of school improvement factors used by Australian States and Territories, governments and educational agencies need to ensure that research collaboration increasingly builds on a substantive evidence base and is aimed at improving student learning and enhancing school effectiveness.

If we are to provide a national schooling system committed to enhancing school effectiveness and improving student learning then the national performance measurement framework could built around the range of factors identified in figure 2 of Attachment C rather then the current
suit of National School Key Performance Indicators. New national KPI’s could include input measures, student characteristics, school climate, enabling condition indicators, teaching and learning process indicators, student outcomes and context indicators.

**In conclusion**

There is a lot of evidence that ‘Assessment for Learning’ can make a significant improvement for individual student and class learning – thus developing a small learning community. Meeting the challenges associated with the issues identified in this paper requires networks of learning communities to be developed. District managers and staff collaborating with school principals should manage regional variance issues. The appropriate executive management groups should manage system level issues and systemic system issues. Principals in collaboration with their staff should manage school level issues in consultation with their communities.

This paper suggests that the dual purposes of enhancing school performance and increasing student learning should drive the use of performance data. It may be opportune for governments to reflect on the interrelationship on the data that is collected for national and State/Territory reporting and evaluate the contribution, costs and benefits, of the limited range of strategic performance data reported in the public domain.

The critical challenge for government, and organisations such as QSA, is to research and explore alternative approaches for providing appropriate performance data to support the development of learning communities to improve school effectiveness and student learning outcomes.

Finally, while the aims expressed in this paper may seem to some like utopian idealism the philosophy of using evidence to enhance school effectiveness and improve student learning is being put in practice in an innovative research project between the Alliance of Aboriginal Community Schools in Cape York and the QSA. This research project involves the building of a professional learning community, sharing Year 3, 5 and 7 literacy and numeracy data to analyse exemplar practice and to transfer exemplar management and pedagogical practice between the Alliance schools. The Alliance of Aboriginal Community Schools include: Bloomfield State School, Bwgcolman Community School, Coen State School, Hopevale State School, Herberton State School, Kowanyama State School, Lakeland State School, Laura State School, Lockhart River State School, Pormpuraaw State School, Rossville State School, Western Cape College, Yarrabah State School, Doomadgee State School and Mornington Island State School.

A report on the effectiveness of this research project may be the subject of a presentation and paper at a future conference.
Queensland Government Changes to Schools Reporting October 2004

Improved school reporting
The Government has endorsed changes to the way that schools report on student and school performance. The changes are outlined below.

1 Principles
A set of principles to guide school reporting practices in all Queensland schools (see back page) has been introduced to provide parents with a guarantee of comprehensive and regular information about their child.

2 A Unique Student Identifier
Every child at every school in the state will be assigned a unique student identifier. This will assist schools to have better knowledge of students who have moved schools and will assist them to tailor services to each child’s individual needs. It will also be a valuable tool for evaluation of educational programs. This system will be managed by the Queensland Studies Authority. Public consultation supported this initiative.

From 2005, all Year 10 students will have a unique student identifier as part of the Education and Training Reforms for the Future. The timing of implementation of the unique student identifier for all students will be negotiated between the Queensland Studies Authority and each of the three school sectors. Privacy protocols will be observed to prevent misuse of information.

3 New format for Years 3, 5 and 7 test reports from the Queensland Studies Authority
From November 2004, parents will receive a new report for Years 3, 5 and 7 literacy and numeracy tests from the Queensland Studies Authority. The new reports will be easier to read and understand and will show how students perform in comparison to national benchmarks for reading, writing and numeracy.

The new reports received overwhelming support from the public consultation.

4 Written student reports at least twice per year
From 2006, parents of every child in every school in Queensland will receive a written report card, either in hard copy or on-line at least twice a year.

Most schools already provide written reports at least twice each year. This new policy will ensure that this reporting is a basic right of parents and will occur in every school. These changes received overwhelming support from the public consultation.

5 A common framework for written student reports, with a common scale
Decisions relating to a common framework for school report cards with a consistent five-point results scale will be the subject of further consideration in the context of aligning activities across curriculum, teaching, assessment and reporting in Queensland.
At present, there are no common categories of information (e.g. areas of learning, social development, how parents can help) or a consistent result scale in student report cards across schools. Greater consistency in these processes will assist parents and students in understanding student progress, particularly when students transfer between schools.

The consultation process showed that many people would like more consistency across schools in what is taught and how it is assessed, supporting a common framework for school reports.

Work is continuing on how schools could be more consistent in the way they report to parents.

6 Parent–school relationship, with interviews each semester

From the beginning of 2006, every school will have processes to establish positive relationships with parents early each year, and offer parent–teacher interviews each semester. Parents have the right to decline an interview if their needs have been met in other ways. Most schools currently have positive reporting relationships with parents. Improved parent teacher processes, including ways to improve parent satisfaction with interviews and encouraging greater parent involvement in schooling, are encouraged. This proposal received overwhelming support from the public consultation.

7 Annual reporting by schools, accessible on the web

By mid-2005, every school will be required to publish information about the school and its outcomes. This may be a paper or website publication. The information will include contextual information such as the curriculum taught, opportunities for parental involvement and extra-curricular activities, as well as outcomes data such as summary information in the literacy and numeracy tests and retention rates. From mid-2006, each school will be required to publish annual reporting information on its school website.

Currently all state schools and many non-state schools provide descriptive and performance data to their communities through a School Annual Report or other documents to support continuous improvement and enhanced accountability. The public consultation showed that most people want more information on schools.

8 Annual publication of Year 12 data by school, plus a destination survey

In Term 1 2006, the Queensland Studies Authority will release 2005 summary information on each school that has students in Year 12. The data will include the breadth of subjects offered, the number of students studying vocational subjects and the number who gained vocational qualifications or an Overall Position (OP) sufficient to gain entry to tertiary studies. This data will be published in Queensland newspapers, subject to conditions. Early in 2005, each school will receive its 2003 and 2004 Year 12 data.

The Government is also considering a proposal to conduct an annual statewide survey of the study, employment and other destinations of Year 12 students in the year after leaving school.

School Reporting Principles

1. School reporting is part of a cooperative relationship between school staff, parents, students and the community, which involves mutual responsibility, respect and trust.

2. All students and parents are entitled to confidential formal and informal school reporting that is responsive to individual needs and used to plan future learning.
3. School reporting acknowledges student achievement over the reporting period.

4. School reporting identifies students’ strengths and areas for improvement across a broad range of indicators, including curricular, other activities and social development within the school context.

5. All parents should have the opportunity to be involved in the development, implementation and review of reporting practices at their school.

6. All parents should receive regular and clear reports on their child’s progress and have opportunities to discuss their child’s progress with teachers, from early in the school year.

7. Each school community should have access to regular and easy-to-understand reporting on its school’s performance against its mission, goals and educational programs.

8. School communities have access to information about school performance that uses clear, broad, agreed-upon indicators that avoid superficial comparisons of schools or sectors.

Reporting the communication of information on student achievement to a variety of audiences in a variety of styles for a variety of purposes.

Report a summary statement of student achievement (in whatever media, genre or format) at a point in time.

Goal Common principles for effective reporting about students and schools underpin policies and procedures across all Queensland schools.

This document is available at: www.education.qld.gov.au/schools/reporting
YEAR 12 PERFORMANCE AGAINST SOME PERFORMANCE MEASURES (2002)

State level summary data

Of the 39,314 2002 Year 12 graduates:
- 12,100 (30.8%) enrolled in University via QTAC,
- 10,392 (26.4%) enrolled in VET/TAFE (from the DET database)
- 1,439 (3.7%) deferred
- 16,913 (43.6%) are unknown. (Unknown includes Year 12 graduates in employment, enrolled in VET private provides whose enrolments are not collected by DET, and graduates traveling interstate and/or overseas for study or other purposes)
- 11,055 (28.5%) were OP ineligible

Of the 10,392 students from the DET database, 10,075 students provided comprehensive data which showed that:
- 7,776 (77.2%) were enrolled in VET in school
- 2,299 (22.8%) were not enrolled in VET in school
- 3,893 (38.6%) were OP ineligible
- 3,787 (48.7%) of students who studied VET in school were OP ineligible

System level summary data

Of the 2002 Year 12 graduates:
- 60.4% were enrolled in Government schools
- 19.2% were enrolled in Catholic schools
- 19.8% were enrolled in Independent schools
- The remainder 0.7% were enrolled in Senior Colleges and Special Schools

While Government schools comprise 60.4% of Senior Certificate graduates, they comprise:
- 83.4% of CPCSE enrolments
- 67.6% of VET enrolments
- 75.0% of SAT enrolments
- 53.3% of OP eligible students
- 54.6% of students who sat the QCS
- 82.2% of students who did not sit the QCS test
- VET attainment - AQF1 was 69.3%, AQF2 was 68.9% and AQF3 was 45.7%
- 66.6% of VET/TAFE take up (from the DET database)
- 46.3% of university take up via QTAC
Regional Performance (2002)

- The VET take up rate via QTAC ranges from 11.2% of the Year 12 cohort in Mt Gravatt district to 0% in South Burnett, Mt Isa, and Torres Strait Islands Districts
- The university take up rate via QTAC ranges from 48.5% of the Year 12 cohort in Stafford District to 12.9% in the Mt Isa District, 14.3% in the Torres Strait Islands District, and 19.6% in the Logan Beaudesert District
- The VET take up rate via DET ranges from 37.1% of the Year 12 cohort in West Moreton and 36.6% in Longreach District and 36.3% in Emerald District to 20.2% in Stafford District, 20.2 in Gold Coast South District, 20.8% in Gold Coast North District, and 21.3% in Cairns and Cape District.
- The percentage of Year 12 students sitting the QCS test ranged from 90.1% in Stafford District to 39.0% in the Torres Strait Islands District
- The percentage of Year 12 students OP eligible ranged from 84.1% in Stafford District to 20.6% in the Torres Strait Islands District and 45.2% in Mt Isa District
- When the take up rates into VET/TAFE via QTAC are added to the take up rates to university via QTAC the rates range from 69.5% in Darling Downs District and 64.9% in Stafford District to 39.7% in the Torres Strait Islands District and 43.0% in Gold Coast North District

School Performance

Individual school differences have been analysed on the derived measures to ascertain patterns of relative performance. There is a substantial range of performance across Queensland schools on all these measures. While there is volatility of data for schools with small numbers of Year 12 enrolments, many of the schools, which have lower performance on these measures, appear to have high participation rates of Indigenous students.

The range of performance on measures can suggest an array of different orientations of schools to their communities. Examples include:

- The take up rate per school into either VET/TAFE (from the DET database) plus university take up via QTAC ranges from 100% to 0% when special schools are excluded;
- The percentage of students OP eligible per school ranges from 100% to 0% even when special schools are excluded;
- The percentage of students OP ineligible and not gaining a VET Certificate ranges from 0% to 100% when special schools and ultra small schools are excluded;
- The percentage of students who sat the QCS per school ranges from 100% to 0% even when special schools are excluded.

Student Sub-group Performance

1,039 Indigenous students completed the Senior Certificate in 2003

- 306 were OP eligible (29.5%)
- 350 were OP ineligible with no VET Certificates (33.7%)
- 454 sat the QCS (43.7%)
- 895 were enrolled in VET courses (86.1%)
- VET attainment - AQF1 was 354, AQF2 was 221, AQF3 was 1 and School based Apprenticeships 12
World Bank Studies on School Effectiveness

The origins of studies on school effectiveness can be found in sociology and in the derivation of educational “production functions” in the economic sense. The purpose of these studies was mainly to establish the existence of a relationship between the provision of certain school inputs and students’ achievement (output).

The very first studies, performed in the United States by Coleman (1966) in the 1960’s, presented a somber outlook with respect to the importance of schools on the academic progress of students. According to the study’s conclusions, later confirmed by Jencks (1972), the context variables were responsible for most of the variation in performance, whereas the teachers and the school itself played a very marginal role in the student’s intellectual development. These studies attempted to measure the association between the context variables and achievement, without establishing any causality between these two sets of variables.

The educational community’s reaction to such pessimistic results was immediate. The school effectiveness movement was thus born in the United States. Within the context of this school of thought many subsequent studies would be developed in the search for a hypothesis that would disprove the limited role of teachers and schools. Correlational studies gave way to the studies in which the context variables were used as predictors of achievement. Therefore, the effect of the school was to be measured by the achievement expected from the context variables. When the achievement averages were above those predicted by the model, the school was said to be effective (Fernández y González, 1997).

This first generation of works presented several common features (Ridell, 1989):

- Absence of a theory on education.
- Overvaluation of statistical relevance, which prevailed over educational factors. The choice of a variable depended more on its measurability than on its relevance in educational terms.
- Use of ordinary least squares techniques and cross-sectional samples for estimation.

The second generation of studies on effectiveness, developed in the 1980’s, refined those of previous years with respect to the design of the study as well as the measurement of school effectiveness. Contrary to their predecessors, for whom the focal point of the study was the relation between the level of physical inputs and academic achievement, these centered their efforts in the process variables and their effect on achievement. As a consequence, the teacher became responsible in improving the achievement of his or her students (Fernández y González, 1997).

The most commonly cited characteristics of effective schools were subsequently included in the so called five factor model (Scheerens and Creemers, 1989):

- Strong educational leadership
- High expectations on the students’ success capabilities
- Emphasis on basic strengths
- Organized and secure climate
- Frequent evaluation of student progress

Later came the hybrid studies, in which the influence of the process variables (at the teacher and school level) and of physical inputs were measured against student achievement.
These studies, when performed in an international context, revealed enormous differences between developed and developing countries with respect to the effect that school factors produce on the student’s academic achievement. They would come to endorse the conclusions of Coleman and Jencks by stating that in industrialized countries, the main predictor of academic achievement was the student’s context, and thus, that the role of the school was secondary. The relevance of the school increased as the level of development of the country was lower (Fuller, 1987; Heyneman, 1989; Heyneman and Loxley, 1983; Piñeros and Rodríguez, 1999).

The following summarizes some results of the studies on effective schools in terms of common school factors (Heneveld and Craig, 1996):

(a) At the basic input level:
- School supplies (textbooks, teacher’s guides, library, etc.)
- Curriculum with appropriate scope and sequence; content relevant to student experience
- Learning time (number and duration of school days)
- Learning methods (teamwork, etc.)

(b) At the facilitating conditions level:
- Involvement of community and parents
- Professionalization of teaching (principal’s leadership, commitment and level of education of teachers, ownership, evaluation and supervision)
- Flexibility in curriculum according to students’ needs
- School decentralization and autonomy

The integrated models of effectiveness appeared in the mid-1980’s as an attempt to incorporate the progress achieved in the field of organization theory to the field of education. This progress was accompanied by progress in other fields, such as statistics and information systems; enabling researchers to incorporate more precise empirical results on factors related to academic achievement, to theoretical developments. The incorporation of these new models and techniques lead many authors to revert the conclusions they had drawn in previous works.

Integrated models of school effectiveness

According to Scheerens and Creemers, a model of effectiveness would be characterized by the use of the concept of productivity as the criterion to measure organizational effectiveness, the relevance of the context, and its multilevel nature, as illustrated in Figure 1.

Until the introduction of integrated models, empirical research on effectiveness had taken place outside of the field of education administration, which ultimately implied that many critical elements for analysis were excluded. For this reason, some elements of organizational theory were incorporated. Of the various criteria used to analyze the effectiveness of organizations, the integrated models adopt economic rationality as a theoretical framework and the concept of productivity as the key element to assess its performance. The productivity approach considers the product as the basic criterion to assess the achievement of the objectives and stresses in finding the factors within the organization that maximize the same.

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1 For a complete analysis, see Fuller (1987), who presents the state of the art in research developed until then on common factors.
2 The HIERARCHICAL LINEAR MODELS (USA) AND MULTILEVEL ANALYSIS software packages, developed in the 1980’s, allow to decompose the variance in the levels in which it is grouped and to estimate the portion of the variance that is explained by each of these levels.
3 An example can be found in the discussions by Ridell (1989) and Heyneman (1989). In a study on Zimbabwe, Ridell (1989) questions Heyneman's conclusions on the role of the school in explaining achievement, alleging flaws in research methodology and design. In his answer, Heyneman acknowledged that if indeed his results were flawed, it was because of the limitations in estimation techniques of the 1970's, affected the levels of precision. In heyneman's words, condemning results obtained in the '70s using OLS estimation techniques, would be "like condemning Charles Lindbergh for not using the radar".
4 When the least cost is added to output maximization, effectiveness becomes a more restrictive definition of efficiency.
The importance of context derives from contingency theory, which states that given that the effectiveness of the organizations depends on situations, the context of the school must be taken into consideration more explicitly, since the school is not a closed unit; it is a system that interacts constantly with the environment.

In terms of the multilevel nature, a causality model of achievement must be understood as a model in which the main organizational interactions are those between levels, in which the higher levels must provide enabling conditions for the central processes of the lower levels. These models include, in general, a level for school organization and administration, a level for the teacher and a level for context and student performance.

![Multilevel Model of School](source: Scheerens and Creemers, 1989)

Figure 1 summarizes this description. In it we can see that the framework of the integrated models is defined by the relations between the variables, gathered into four factor groups: context, input, process and product. The results of some studies that use the integrated models of school effectiveness are presented below.

**Factors determining school effectiveness**

There are many studies establishing the factors with higher incidence on academic achievement (Heneveld and Craig, 1996; Sammons, Hillman and Mortimore, 1995). Although these models are intended to be general, in the sense that they can be applied in developed as well as in developing countries, the authors agree in cautioning about two fundamental issues. First, the fact that the factors should not be seen as independent from one another; more to the contrary, they seem to condition one another. Second, the combination of characteristics and their interaction depends on the context (institutional, cultural, social and political) in which the schools are immersed.
Figure 2 presents the theoretical framework of the current trends of studies on school effectiveness. It is apparent here, that the interaction between the four factor groups conditions the results of the learning – teaching process.

The diagram shows that the students become the subjects of the educational process, and that results are defined in terms of achievements. The teachers in this context become factors that condition school climate as well as factors that boost learning possibilities. Finally, the classroom becomes the stage in which teachers and students interact, making use of the various learning – teaching processes.