# Improving literacy standards in government schools

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Under the provisions of section 16AB of the *Audit Act* 1994, I transmit my performance audit report on *Improving literacy standards in government schools.*

Yours faithfully

J.W. CAMERON
*Auditor-General*

15 October 2003

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# Foreword

Reading ability is a key life long skill. For individual students, good literacy skills are a pre-requisite to successful progression through the compulsory years of schooling, and in the transition from school to the work force. Poor reading skills can have far-reaching personal, social and economic costs.

Educationalists recognise the early years of schooling lay the foundations for the development of literacy skills. The provision of appropriate and effective literacy improvement programs during these years are essential for maximising the literacy achievements of all students.

Ensuring high standards of literacy are achieved by all Victorian students is the responsibility of the Department of Education and Training. This requires that the Department monitor student reading proficiency levels in order to identify those students at risk of not meeting satisfactory standards in reading. It is critical that the Department ensure that appropriate and effective literacy improvement programs are maintained for these students and that student participation is targeted according to need.

It was important that my Office examine this subject. The Government and taxpayers need to know whether the high level of resources applied to literacy are producing positive results. Parents need to know whether the work of schools is having a positive impact on their children's literacy proficiency.


J.W. CAMERON
*Auditor-General*
15 October 2003

# Part 1

# Executive summary

# INTRODUCTION

Reading proficiency is essential for successful participation in the compulsory years of schooling, post-secondary education and employment. The early years of schooling provide the educational foundation for the development of life-long reading literacy skills.

The Department of Education and Training and the Victorian Curriculum and Assessment Authority contribute to ensuring that all students achieve expected literacy standards. The Department is responsible for the quality of delivery of the curriculum in government schools and for the provision of literacy improvement programs for those students "at-risk" of not achieving their educational potential. The Authority is responsible for the curriculum and standards for student learning, and administering a Statewide assessment and reporting program known as the Learning Assessment Program (LAP)/Achievement Improvement Monitor (AIM).

Between 1996 and 2003, some $662 million has been applied in various literacy improvement programs. The 3 key programs employed by the Department are the:

- *Early Years Literacy program.* This program was introduced across the State in 1999 for all students in Years Prep to 4;

- *Reading Recovery program.* This program, introduced in 1984, aims to improve the reading proficiency of the lowest achieving Year 1 students and bring them up to the average level of performance achieved by their class. The program was not specifically funded across all schools until 1999; and

- *Restart program.* This program, introduced in 2002, aims to improve the literacy proficiency of Year 7 students most "at-risk" of not achieving satisfactory standards. Funding is provided for 2002, 2003 and 2004 to 101 schools.

Since 1995, the reading proficiency of all students in Years 3 and 5 has been assessed using LAP/AIM tests. Testing for Year 7 students was introduced on a voluntary basis in 2000, and mandated from 2003. The reading proficiency of all Years Prep to 10 students is assessed annually by teachers based on their judgements of student achievements.

## AUDIT OBJECTIVES AND SCOPE

The objective of this audit was to assess the efficiency and effectiveness of the 3 key literacy improvement programs in Victorian government schools. The audit examined whether:

- the progress of students that participate in literacy improvement programs is greater than their progress had they not participated and is sustained over time;

- the current methods of resource allocation for literacy improvement programs are appropriate; and

- the literacy proficiency data collected at the end of Years Prep to 2, and at Years 3, 5 and 7 is complete, accurate and appropriately used for decision-making and reporting.

Our audit examinations were undertaken within the Department, the Authority and a sample of government primary and secondary schools. Student reading proficiency data collected by the Department and the results of assessments of student reading proficiency conducted under the LAP/AIM Statewide testing program at Years 3, 5 and 7 between 1996 and 2002 formed the basis of our analyses.

## OVERALL CONCLUSION

The Victorian Government has made a substantial investment in literacy improvement programs over the last decade, particularly since 1999. All students in Years Prep to 4 participate in the Early Years Literacy program, while the Reading Recovery and Restart programs are provided for the lowest performing students in Years 1 and 7, respectively. The rationale for its investment in these programs is that improvement in student reading proficiency, particularly among young children, is likely to lead to better long-term outcomes for individuals across the compulsory years of schooling.

The results of the LAP/AIM Statewide testing program, which are conducted at Years 3, 5 and 7, provide an indication of trends in student reading proficiency levels. Our analysis of this data over a 7-year period to 2002, showed that there has been little average improvement in the reading proficiency of all students at Years 3, 5 and 7.

The Statewide testing program also provides a means of monitoring the impact of the Government's literacy improvement programs. The first indication of the impact of the Early Years Literacy program should be evident for participants at Year 3 from 2000 and at Year 5 from 2002, and for the Reading Recovery program, for participants at Year 3 from 2001. Our analyses showed that there has been a small improvement for the lowest performing students at Year 3 in 2002 and at Year 5 between 2000 and 2002.

To reliably assess whether the Government's investment in literacy has produced the desired results, it is necessary to determine whether the improvement programs have been effective. This involves measuring both the immediate impact of the program and whether any improvements in student reading proficiency are sustained over time.

In terms of the immediate impact of each program, our analyses of the available program-specific data collected by the Department for Reading Recovery (1999 to 2001) and Restart (2002) showed an improvement in the reading proficiency of participating students. Similarly, the Department's analysis of its data from the Early Years Literacy program (1998 to 2002) showed participating students improved their reading proficiency.

To determine whether this improvement for Early Years Literacy and Reading Recovery participants had been sustained, we tracked the subsequent achievements of these students over time. Due to inconsistencies in the recording of student and school details, and the lack of unique school-level and student-level identifiers for LAP/AIM data, limited longitudinal data were available for this assessment.

For the Early Years Literacy program, we were able to track 70 per cent of the students who participated in the program in 1999 through to their Year 5 LAP/AIM test in 2002. The results showed better performance for these students compared with other students in earlier assessment years who had not been exposed to the full program. For the Reading Recovery program, we were able to track 42 per cent and 50 per cent of the students who participated in the program in 1999 and 2000, respectively, through to their Year 3 LAP/AIM test in 2001 and 2002, respectively. The results showed that program participants in 2000 had better achievement levels by Year 3 than 1999 participants. Neither group of students, however, reached the achievement levels of students who had not participated in the program. It is too early to assess the long-term impact of the Restart program since this program commenced in 2002.

Our analyses showed improvement in the reading proficiency of students who had participated in the 3 literacy improvement programs. However, the Department is unable to determine how much of this improvement is a direct result of program participation. To do so in the future, the Department needs to develop a rigorous evaluation methodology. This would encompass measurement of indirect factors known to impact on student improvement (e.g. teacher quality and normal maturation) and the establishment of comparative groups of non-participating students. At this point in time, the Department has not established such a methodology for all programs. Consequently, the effectiveness of these 3 programs cannot be reliably assessed.

Resource allocation for literacy improvement programs could be more effective, particularly if allocations were better targeted according to the relative needs of students. Programs and resources are provided for literacy improvement in Years Prep to 2 and then again at Year 7, despite evidence from the reading tests that some students perform poorly in the intervening years.

Information systems and procedures supporting the entry and processing of reading proficiency data are adequate. However, the data collected are not being used as effectively as they could be for decision-making and reporting. Continuous improvement relies on these data being used by the Department and schools to inform the design and delivery of literacy improvement programs.

## AUDIT FINDINGS

### Trends in student literacy achievement

#### *Achievement of Years 3, 5 and 7 students*

Between 1996 and 2002, there has been little average improvement in reading literacy proficiency of all students at Years 3, 5 and 7, as measured by LAP/AIM tests. Nonetheless, there has been a small improvement for the lowest performing students at Year 3 in 2002 and at Year 5 between 2000 and 2002.

Both student characteristics (i.e. gender, language background and indigenous status) and school characteristics (i.e. the proportion of students with characteristics that may negatively impact on their learning) accounted for very small proportions of the variation in student literacy proficiency.

***Paras 3.10 to 3.18***

# Impact of literacy improvement programs in the early years

## *Early Years Literacy program*

The reading ability of all Years Prep to 2 students as assessed by teachers and shown in the Department's aggregated Assessment of Reading data, indicates a steady improvement between 1998 and 2002. This time frame matches the provision of increased funding targeted to literacy improvement programs, including the Early Years Literacy program.

We analysed existing LAP/AIM test data to examine the long-term impact of participation in this program by tracking small groups of students as they progressed through Years 3, 5 and 7. Our analyses showed that, on average, all groups made expected maturational gains in their LAP/AIM reading achievement scores by Year 5 and, where data was available, by Year 7.

The spread of LAP/AIM scores decreased over this period, and there was a steady improvement in performance of those Year 3 students with low reading proficiency levels. However, nearly 90 per cent of the poorest performing Year 3 students we tracked had not improved by Year 5.

***Paras 4.7 to 4.19***

## *Reading Recovery program*

Year 1 students participating in the Reading Recovery program between 1999 and 2001 had increased their reading proficiency. Although a positive result, participation in the program did not bring these students up to the average achievement level of their peers.

We were unable to conclude whether this initial improvement was sustained in subsequent years. For the group of students who had participated in Reading Recovery in 2000, a strong relationship was found between student performance and the school they attended. This result may reflect the effectiveness of implementation of the Early Years Literacy and Reading Recovery programs in particular schools.

***Paras 4.20 to 4.28***

# Impact of literacy improvement programs in the middle years

## *Restart program*

The Department's evaluation of its Restart program indicated that those Year 7 students who participated in the program improved in their reading performance more than a "control" group of Year 7 students who did not participate in the program. This conclusion was based on a comparison of the 2 groups of students, each with different initial achievement levels. In order to draw a reliable conclusion about the effectiveness of the program on student outcomes, however, it is necessary that both groups have the same initial characteristics (e.g. gender, language background and pre-test results).

We undertook a re-analysis of the performance of students in the Restart program and a control group. This analysis used the pre- and post-program reading test data collected by the Department. The results of our analyses showed that students who participated in the Restart program improved their literacy proficiency levels more than the control group. This result was consistent with the Department's own analyses. However, the different achievement levels of the 2 groups at the start of the program do not allow a clear conclusion to be drawn about the impact of the Restart program. Given that 2002 was the first year of the Restart program's operation, it is too early to assess whether any improvement due to the program is sustained over time.

We also undertook further analyses of the performance of students selected for the Restart program by comparing their Year 5 and Year 7 LAP/AIM test results. These analyses showed that the progress made by the Restart students was not as great as that of students in the control groups. This result contrasts with the Department's analysis of the impact of the Restart program.

*Paras 5.7 to 5.24*

# Improving efficiency and effectiveness of literacy improvement programs

## *Targeting of funding according to student need*

Resource allocation for the Early Years Literacy and Reading Recovery programs could be more effective. The Department's method of allocating funds to schools for these programs does not take into account student need as reflected in their level of literacy proficiency.

Funding for the Early Years Literacy program is based on the number of students in the early years at each school, with no consideration of students' current literacy proficiency level. The Department's data on program participants shows an improvement in student reading proficiency between 1998 and 2002. It has not been possible, however, to determine whether all students who participated in this program have improved, or the extent to which any improvement was due to participation in the program. It will be important for the Department to better identify the impact of the program on individual students as such information will inform assessment of the program's effectiveness. This includes whether the current method of allocating funding is designed to achieve the greatest effect in raising literacy levels.

Funding for the Reading Recovery program is currently allocated across schools to enable provision of the program to the bottom 20 per cent of their Year 1 students. No consideration is given to the actual number of students below acceptable reading standards who require such intervention. In 2000 and 2001, 60 per cent and 57 per cent, respectively, of Victorian government schools allocated further funds to Reading Recovery from their School Global Budget.

**Paras 6.5 to 6.16**

> We recommend that:
> 1. the Department review the current method of allocating funds for the Early Years Literacy and Reading Recovery programs to ensure that it better reflects the relative learning needs of students and individual school requirements.

## Student reading proficiency assessment

The current practices adopted by the Department and the Authority to assess student reading proficiency are limited in that they do not provide a comprehensive and reliable assessment of the effectiveness of literacy improvement programs, nor of growth in student reading proficiency. These practices could be improved by the adoption of rigorous program evaluation methodologies, a longitudinal focus, the use of assessment instruments with compatible measurement scales and better management of student assessment data.

**Para. 6.18**

## *Program evaluation methodologies*

The Department is currently unable to reliably determine the effectiveness of its literacy improvement programs. This is due in part to incomplete assessment data. For the Reading Recovery and Restart programs, the Department only collects data on those students who have been assessed by schools as eligible to participate in the programs, despite requiring schools to assess all Years 1 and 7 students. Had the data for all Years 1 and 7 students been available to audit, any improvement in student literacy proficiency directly attributable to the program could have been measured. For the Early Years Literacy program, the Department only collects aggregated data. Without individual student-level data, the Department is unable to determine the long-term impact of the program.

***Paras 6.19 to 6.20***

## *Longitudinal focus*

The Department assesses and reports only on the initial or short-term impact of literacy improvement programs. The Authority limits its system-level reporting of Years 3, 5 and 7 AIM Statewide testing results to single years.

To reliably assess the full effectiveness of the Government's literacy improvement programs, it is essential to measure the growth in reading proficiency of all students, and whether any improvements following participation in these programs are sustained. This requires individual student-level data and the capacity to track test results for individual students across different years. Although the Authority has the capacity to measure growth in individual student performance across the testing years, there is currently no means of linking this data with the student reading proficiency data collected by the Department.

***Paras 6.21 to 6.26***

## *Compatibility of assessment scales*

The Authority and the Department use different assessment scales to report student reading proficiency. The LAP/AIM scale used by the Authority differs from the assessment scales used by the Department in a number of ways. The LAP/AIM scale allows a more detailed assessment of student performance at the individual task level, provides the capacity to compare directly student responses from different tests in different years, and assesses a broader range of student outcomes.

In the absence of a common measurement scale linking assessment instruments from early years to Year 10, assessment of student performance is not directly comparable over time, nor is the measurement of growth in student reading proficiency possible.

***Paras 6.27 to 6.28***

## *Management of student assessment data*

There were inconsistencies in the data obtained from the Department and Authority, including the formatting and coding of student details across data sets for different Year levels, as well as across assessment years, and in the formatting of databases. There were also inconsistencies in the equating methodologies used by the Authority.

Since the Department and the Authority use different student-level and school-level identification systems, this limits reliable measurement of growth in student reading proficiency and identification of student need over time.

**Paras 6.29 to 6.31**

We recommend that:

2. The Department ensure literacy improvement programs incorporate rigorous evaluation methodologies with which program effectiveness can be reliably assessed;

3. The Authority develop techniques to monitor student growth in reading proficiency using existing data collections against a common measurement scale (i.e. Rasch calibrated);

4. The Authority, in conjunction with the Department, ensure that assessment scales used to measure student performance are comparable across the early and later years of schooling;

5. The Authority ensure that a consistent equating methodology and a common measurement scale are used from Years Prep to 10 to enable valid and reliable comparisons of student reading achievements both within Year levels and across assessment years;

6. The Department and the Authority develop protocols to ensure the consistent and accurate recording of student identification data through adoption of a common student-level and school-level identification system. These protocols should take into account privacy principles; and

7. The Department and the Authority adopt consistent data management procedures that are adequately documented in terms of standard operating procedures.

### *Responsibility for assessment of student reading proficiency*

Both the Department and the Authority have a role in the assessment of student reading proficiency. We consider the current arrangements of shared responsibility may not optimise the efficiency and effectiveness of the system for assessing the literacy proficiency of students and tracking over time. The Authority is ideally placed to conduct assessments, analyse and report the results, and identify where improved standards of achievement are required. The Department is best suited to ensure that literacy improvement initiatives are underpinned by rigorous research and evaluation methodologies, and develop appropriate strategies to address areas requiring improvement.

***Paras 6.33 to 6.39***

> We recommend that:
> 8. the Department and the Authority review their respective roles for assessment of student literacy proficiency to optimise the efficiency and effectiveness of systems for monitoring and reporting student achievement.

## Reporting and continuous improvement

### *School activities*

Schools we visited had complied with their responsibilities for reporting on student achievement. However, there was variability across schools in the clarity of reporting and quality of interpretation of performance data reported through school annual reports. Information on growth in student reading proficiency and the schools' aggregated AIM test results were not included in school annual reports.

Our discussions with school principals, teachers, and representatives from Parents Victoria, revealed that parents' satisfaction with, and experience of, school reporting varied across schools. Parents noted that there were often differences between the results in AIM reports and those based on teacher assessment of student achievement. There is a need for more explanation of the relationship between the 2 assessments and interpretation of results.

The extent to which schools used student reading proficiency data for planning and continuous improvement purposes varied.

***Paras 7.3 to 7.23***

We recommend that schools:

9. give more attention to helping parents better understand the relationship between AIM test results and teacher assessments of student reading proficiency in order to improve reporting to parents;

10. ensure that maximum use is made of student literacy proficiency data for planning and continuous improvement; and

11. focus on monitoring the growth in student reading proficiency over time and use this information for identifying students "at-risk" and targeting programs to improve their performance.

## *Activities of the Department*

The provision, by the Department, of more timely feedback on student reading proficiency data, together with guidance in its use by teachers for improving performance, would enhance the efficient and effective use of that data by schools.

Information on student performance reported by the Department in its annual report was incomplete. Information not disclosed included a longitudinal measure of student growth in reading, the performance of student sub-groups and aggregated information on student reading proficiency levels, as assessed by the AIM Statewide testing program.

The Department's current approach to continuous improvement for literacy programs could be enhanced. The adoption of a structured program evaluation process would ensure greater linkage between program outcomes and program improvement. More effective use could be made by the Department of the student reading proficiency data that it already collects and analyses from its literacy improvement programs, as well as the AIM Statewide test data, to inform program design and delivery.

**Paras 7.25 to 7.44**

We recommend that the Department:

12. provide analyses of student reading proficiency data to schools in time to be used in their annual planning cycle, along with guidance on strategies that could be used to improve student reading proficiency;

13. include additional information in its annual report that shows a measure of student growth across years in reading and the performance of student sub-groups, and those target groups "at-risk" of not meeting expected performance levels;

14. review and determine parent and community satisfaction with its disclosure of student literacy proficiency in its annual report and other public information sources; and

15. use existing student assessment data collected from literacy improvement programs and the AIM Statewide tests to inform effective targeting of improvement programs to students whose performance is not satisfactory.

## Activities of the Authority

Reporting of student reading proficiency to schools by the Authority could be improved. For example, more timely provision of AIM student reports and additional support to schools to facilitate their greater use of AIM test results for planning and continuous improvement purposes. At the time of this audit, the Authority advised that it was developing an initiative aimed at monitoring school use of AIM data in local decision-making.

**Paras 7.46 to 7.59**

We recommend that the Authority:

16. determine and address any barriers to the use of AIM test results by schools for planning and continuous improvement purposes, including timely provision of AIM reports and the need for additional support for teachers and principals; and

17. require all schools to retain evidence of their compliance with the prescribed procedures for distributing AIM reports to parents.

## Reliability and management of literacy data

### Collection of data by schools

The extent to which schools conduct independent checks on the completeness and accuracy of student literacy proficiency data collected and submitted to the Department varied across schools. There are no departmental guidelines covering internal checking of these processes. Some schools were unclear about the length of time that performance data from students who had participated in the Reading Recovery and Restart programs should be retained.

Schools are responsible for the conduct of the AIM Statewide tests and associated administrative procedures. Despite this, schools are not required to keep any records to evidence that they have complied with the Authority's AIM administrative and security requirements, nor does the Authority routinely check the extent of school compliance.

***Paras 8.3 to 8.11***

We recommend that:

18. the Department develop and annually monitor compliance, in a sample of schools, with standardised procedures aimed at ensuring the completeness and accuracy of literacy data collections;

19. the Department provide clear guidelines to schools regarding the retention of individual Reading Recovery and Restart student records; and

20. the Authority requires schools to retain evidence of their compliance with the prescribed AIM administrative and security arrangements, and check this at a small sample of schools each year.

## *Processing and analysis of data by the Department*

The Department's information technology environment has some minor control weaknesses which could impact on the completeness and accuracy of literacy data (e.g. lack of supporting technical documentation, and inadequate security and edit controls).

There are no written guidelines for data cleaning and validation procedures undertaken by departmental staff in processing and analysing student literacy data submitted by schools. The respective responsibilities of staff are also not clearly defined, nor are there structured staff training programs in place.

***Paras 8.13 to 8.19***

We recommend that the Department:

21. address weaknesses within its information technology control environment, including security and edit controls, and supporting technical documentation;

22. reinforce with schools the importance of submitting their Assessment of Reading data within the required time frame;

23. introduce processes for validating final student literacy reports against the submitted school data during the data cleaning processes;

24. document data cleaning and validation processes, and key staff responsibilities, for the analysis of Assessment of Reading and Restart data, and periodically review the ongoing adequacy of these processes; and

25. document the data validation processes and key staff responsibilities for the analysis of Reading Recovery data.

## *Processing and analysis of data by the Authority*

Between 1995 and 2001, the Authority did not always adequately supervise its contractors engaged to undertake printing and delivery of LAP/AIM test booklets and undertake processing, analysis and reporting of student test results. Since assuming the responsibility for this work in 2002, the Authority has taken action to improve the operation of this activity, including improved quality assurance and risk management.

Some aspects of the Authority's information technology control environment could be improved (e.g. security controls and data security policies), as they could impact on the integrity of the data.

*Paras 8.21 to 8.30*

We recommend that the Authority:

26. ensure implementation of the AIM improvement initiatives are completed in a timely manner and periodically review the effectiveness of these initiatives;

27. develop a comprehensive AIM operations manual and periodically review compliance with, and ongoing adequacy of, these guidelines; and

28. address the control weaknesses within its information technology control environment.

**RESPONSE** *provided by Secretary, Department of Education and Training*

*The Department of Education and Training welcomes the opportunity for an independent audit examining the literacy achievements of students in Victorian schools.*

*The Auditor-General has found that students participating in the Early Years Literacy, Reading Recovery and Restart programs have shown an improvement in reading proficiency. The improvement in the lowest performing students in the early years is encouraging and consistent with the aims of the 3 literacy programs. It confirms the benefit in reducing the number of students "at-risk" and improving the overall levels of literacy for those at the lower achievement levels. The Department's analyses of program specific methods indicate that the 3 key literacy improvement programs are having a positive outcome.*

*The Auditor-General has also found, using AIM data, that there has been little average improvement in the reading proficiency of all students at Years 3, 5 and 7. This is consistent with the Department's expectations for 2 reasons. First, only one year group of students examined by the AIM analysis (Year 3 in 2002) had been through the whole Early Years program. Second, 2 of the 3 literacy improvement programs were targeted at the lowest performing students, not at all students. The average score of all students across the State would be unlikely to change significantly as a result. However, the AIM data clearly indicate that there has been a reduction in the size of the lowest performing group.*

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The Victorian Auditor-General's Office's (VAGO's) examination of available data on the achievement of students who participated in the Department of Education and Training's literacy intervention programs shows clear evidence of improvement in the reading proficiency of those students who participated in them. The VAGO team was unable, however, to reach firm conclusions about the long-term impact of these programs, except to note that the data from the Victorian Curriculum and Assessment Authority's (VCAA's) LAP/AIM tests showed some improvement in performance of students in the lowest achieving groups, but little change in overall mean scores.*

*This is not inconsistent with the findings from the departmental data. The Reading Recovery program was intended to have an immediate impact on the achievement of the lowest performing students. The program-related data suggests that this is happening, and there are indications that it is beginning to flow through to AIM scores.*

*VAGO has undertaken a complex and difficult analysis of a number of different data sets, compiled for a variety of purposes. The Authority acknowledges the magnitude of this task, and recognises the need for a balanced appraisal of all available data.*

*Conclusions about the long-term impact of the Early Years Literacy program would be premature, since the first students to participate in the full program only reached Year 3 in 2002.*

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority - continued*

*The Auditor-General's difficulty in reaching stronger conclusions arose from the timing of the audit and the difficulty in reliably linking AIM data to prior participation in the literacy intervention programs. The VCAA recognises the need, noted by VAGO, to develop better methods of tracking children's achievement through school. It welcomes the call for more rigorous program evaluation methodologies and will provide support in the design of such evaluations, and in the provision and analysis of relevant data.*

# Part 2

# Introduction

## TRENDS IN STUDENT ACHIEVEMENT

**2.1**    Literacy has been defined as "… the ability to read, write, speak and listen to language in a way that allows people to communicate with each other and to make sense of the world" [1]. Reading ability is a precursor of success in writing and other aspects of literacy. In this audit we focus on reading literacy.

**2.2**    Maintaining high standards of literacy remains a major challenge for Victorian schools. In recognition of the importance of students achieving expected reading standards, between 1996 and 2003 the Department of Education and Training has invested $662 million in various literacy improvement programs.

**2.3**    Over the past decade, various organisations have undertaken research directed at identifying the literacy and numeracy skills of Australian students. The results are not directly comparable because different aspects of literacy have been measured, different standards have been used and the measurement time periods are different. Aggregated data may also mask differential performance across student groups. However, these results provide some indication of trends in student achievement.

### Australian Council for Educational Research

**2.4**    In 1996 the Australian Council for Educational Research, via the National School English Literacy Survey [2,3], examined the literacy achievements across Australia of Years 3 and 5 students. The results indicated that a large number of students (27 per cent of Year 3 and 29 per cent of Year 5) did not meet the agreed standard in reading. The survey also showed that boys were well behind girls in terms of their literacy development and that many indigenous students could not read or write satisfactorily.

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[1]  Commonwealth Department of Education, Science and Training. *Your child's future – Literacy and Numeracy in Australia's schools.* Commonwealth of Australia: Canberra, ACT, 2002.

[2]  GN Masters and M Forster, *Literacy Standards in Australia.* Commonwealth of Australia: Canberra, ACT, 1997, pp. 15. The benchmarks were developed by literacy specialists across Australia under the direction of a Benchmarking Taskforce comprising nominees of State, Territory and Commonwealth Ministers, the National Catholic Education Commission, the National Council of Independent Schools' Associations and Curriculum Corporation. The methods used to establish the standards are given on pp. 46-55.

[3]  GN Masters and M Forster, *Mapping Literacy achievement: Results of the 1996 National School English Literacy Survey.* A report on behalf of the Management Committee for the National School English Literacy Survey. Commonwealth Department of Employment, Education, Training and Youth Affairs: Canberra, ACT, 1997.

**2.5**    In 1997[4], the Council published other national survey data on the literacy and numeracy skills of Year 9 (14 year old) students collected from 1975 to 1995. The data indicated that:

- the proportion of boys meeting the basic reading comprehension standard had fallen from 78 per cent to 66 per cent, and the gap between girls and boys had widened over this period from 2 per cent to 8 per cent; and

- the skill levels of certain students, such as those whose first language was not English, were considerably lower than those of other students.

## Organisation for Economic Co-operation and Development

**2.6**    A recent report[5] by the Organisation for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO), examined the reading, mathematical and scientific literacy performance of 15 year olds in 2000 and 2001 across 43 countries, including Australia. This report is based on an international assessment program known as the Programme for International Student Assessment (PISA) 2000.

**2.7**    With respect to average student performance across countries, Australian students were ranked fourth in reading literacy behind Finland, Canada and New Zealand, and sixth and eighth, respectively, in mathematical and scientific literacy. Australia was one of only 10 countries with average literacy performance scores significantly above the OECD average in all 3 areas of literacy performance.

**2.8**    Similar results were achieved by all Australian States and Territories in PISA 2000 where students were at, or above, the average achieved by the participating countries[6]. Statistically, Victorian students were on a par with all States and Territories except the Australian Capital Territory (which was higher) and the Northern Territory (which was lower).

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[4] GN Marks and J Ainley, *Reading comprehension and numeracy among junior secondary school students in Australia: Longitudinal Surveys of Australian Youth, Research report No. 3.* Australian Council for Educational Research: Melbourne, Australia, 1997.

[5] Organisation for Economic Co-operation and Development (OECD), *Literacy Skills for the World of Tomorrow, Further results from PISA 2000.* OECD/United Nations Educational, Scientific and Cultural Organisation (UNESCO) Institute for Statistics, 2003.

[6] J Lokan, L Greenwood and J Cresswell, *The PISA 2000 survey of students' Reading Mathematical and Scientific Literacy skills:15-Up and Counting, Reading, Writing, Reasoning … How Literate are Australia's Students?,* Australian Council for Educational Research: Camberwell, Victoria, 2001.

# NATIONAL LITERACY INITIATIVES

**2.9**   In April 1999, the 10th Ministerial Council on Education, Employment, Training and Youth Affairs, comprising State, Territory and Commonwealth Ministers for Education, endorsed new National Goals for Schooling in the Twenty-first Century. The goal set for literacy was: "… Students should have attained the skills of numeracy and English literacy, such that every student should be numerate, able to read, write, spell and communicate at an appropriate level".

**2.10**   Education Ministers also affirmed their commitment to national reporting on comparable educational outcomes and agreed that the new National Goals for Schooling provided the appropriate framework for such reporting.

**2.11**   Following the announcement, a number of actions were taken to ensure student literacy and numeracy standards improve. These were:

- The development of the National Literacy and Numeracy Plan. An important component of the Plan was the development of agreed national benchmarks in literacy and numeracy; and

- Development of the National Indigenous English Literacy and Numeracy Strategy which sets out a detailed plan to improve educational outcomes for indigenous students.

## National reading benchmarks

**2.12**   The national reading benchmarks represent minimum acceptable standards of literacy achievement for Years 3, 5 and 7, against which student progress can be measured. The collection of student performance data from State and Territory testing programs inform the construction of the national benchmarks.

**2.13**   The results of benchmark testing, introduced in 1999, are reported publicly through the annual National Report on Schooling. Figure 2A shows reading achievement for Years 3 and 5 Victorian students in 1999 and 2000 against average national achievement levels.

**FIGURE 2A**
**PERCENTAGE OF YEARS 3 AND 5 STUDENTS**
**ACHIEVING NATIONAL READING BENCHMARK LEVELS,**
**VICTORIAN AND NATIONAL RESULTS**
**BY SCHOOL YEAR**

| Assessment year | Year 3 students | | Year 5 students | |
|---|---|---|---|---|
| | *Victoria* | *Australia* | *Victoria* | *Australia* |
| 1999 | *(a)* **89.1** | 89.7 | **88.0** | 85.6 |
| 2000 | **93.0** | 92.5 | **92.1** | 87.4 |

*(a)* Represents revised Year 3 reading results following changes to the original method of calculating the national benchmark figures.

*Note*: 2001 results are awaiting release.

*Source*: National Report on Schooling in Australia, 1999; National Report on Schooling in Australia, 2000, Preliminary Paper, National Benchmark Results Reading and Numeracy Years 3 and 5; Victorian Curriculum and Assessment Authority.

**2.14**   Figure 2A shows that, with the exception of Year 3 students in 1999, a greater percentage of Victorian students achieved benchmark levels compared with the national average. The proportion of Victorian students not achieving these minimal levels of reading competency decreased across the 2 assessment years from 11 per cent to 7 per cent for Year 3 students and from 12 per cent to 8 per cent for Year 5 students.

## ESTABLISHMENT OF IMPROVEMENT PROGRAMS IN VICTORIA

**2.15**   The Early Literacy Research Project, undertaken from 1996 to 1998 by the Department and The University of Melbourne, aimed to develop a system-wide approach to maximising the literacy achievements of all students, including those "at-risk" or considered unlikely to reach a satisfactory standard in reading in the early years of schooling.

**2.16**   Previous research[7] showed that while there was variation across schools in the progress made by students, this variation was not as great as the differences across classes within schools. Research[8] also identified classes in which students made very rapid progress, and other classes where students made little or no progress. This research concluded that dramatic improvements in student learning outcomes could be achieved by schools investing more resources in teacher professional development.

**2.17**   Three factors have been identified as characteristic of effective teaching: high expectations of student achievement, engaged learning time, and focused teaching that maximises learning at each student's current learning level[9]. By identifying the key elements of school programs that facilitate effective teaching, the Early Literacy Research Project developed a whole-of-school approach for improving learning outcomes. Findings from the Project have been embodied in the Department's Early Years Literacy program. This program, and 2 other improvement programs developed by the Department, are described in paragraphs 2.27 to 2.35.

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[7] DH Monk, *Education productivity research: An update and assessment of its role in education finance reform*. Education Evaluation and Policy Analysis, Volume 14, 1992, pp. 307-32.

[8] PW Hill and KJ Rowe, *Multilevel modelling in school effectiveness research*. School Effectiveness and School Improvement, Volume 7, No.1, 1996, pp. 1-34.

[9] PW Hill and CA Crevola, *Key features of a whole-school, design approach to literacy teaching in schools*. Australian Journal of Learning Disabilities, Volume 4, No. 3, 1999, pp. 5-11.

# LITERACY IMPROVEMENT FRAMEWORK

**2.18** Figure 2B shows the elements of literacy improvement and related responsibilities of the Department and the Victorian Curriculum and Assessment Authority.

**FIGURE 2B**
**LITERACY IMPROVEMENT FRAMEWORK**
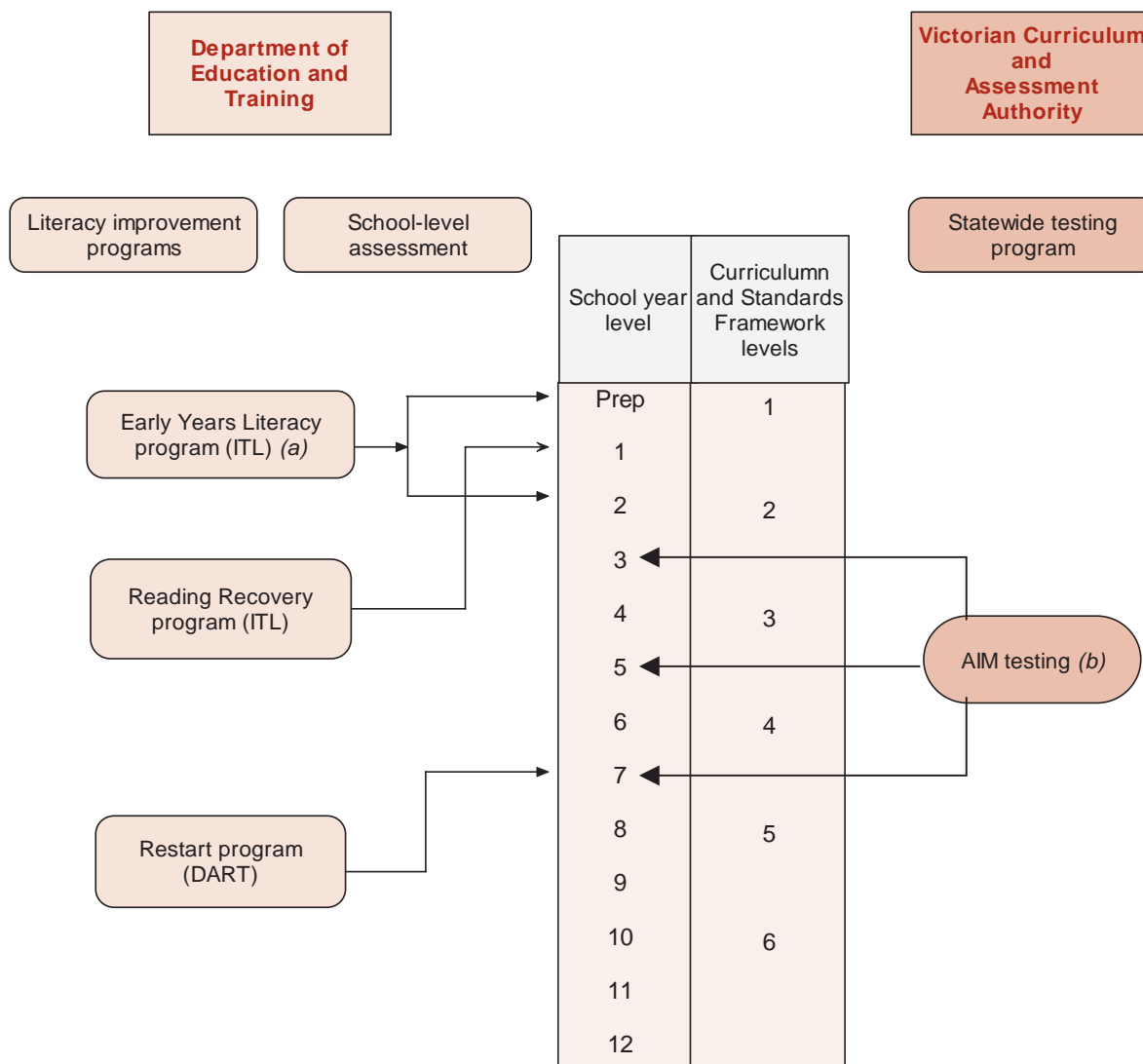


*(a)* This program was formerly known as Keys to Life.

*(b)* In 2000, the Learning Assessment Program (LAP) was relaunched as the Achievement Improvement Monitor (AIM).

*Note*: The figure also shows the assessment instruments used to measure student reading proficiency for the 3 literacy improvement programs. ITL is Instructional Text Level. DART is Developmental Assessment Resource for Teachers.

*Source*: Victorian Auditor-General's Office.

*2.19* Key elements of the framework are described in the following paragraphs.

## Curriculum and Standards Framework

*2.20* Since 1995**,** all schools have been recommended to adopt the Victorian Curriculum and Standards Framework, developed by the Authority. This Framework describes what students (Years Prep to 10) should know, and be able to do, in 8 key learning areas, including the arts, English, mathematics and science.

*2.21* Within each key learning area, the major knowledge and skills are arranged into strands. For each strand, the Framework sets 6 levels for student achievement over 11 years of schooling. Each level covers approximately 2 years of schooling. Figure 2B shows the relationship between the Framework levels and school year level.

*2.22* The Framework provides information for schools and the community on the major components of the curriculum and the standards expected of successful students. Student achievements against the Framework levels are periodically assessed by the classroom teacher and reported to their parents.

## Teacher assessment of student performance

*2.23* At the end of each year, teachers in Victorian government primary and secondary schools are required to make judgements about the achievements of individual students in English (including reading) and mathematics for Years Prep to 10 against the levels in the Framework[10].

*2.24* The results of these individual assessments are reported to parents. These data are also aggregated by schools and submitted to the Department. The Department then uses this school performance data to produce State and "like" school group[11] benchmarks. The Department provides these results to schools for inclusion in their annual report, enabling them to evaluate the level of their students' performance relative to other students in Victorian government schools.

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[10] Teacher assessment of student achievement in English (reading) against the Curriculum and Standards Framework for Years Prep to 2 is optional due to the Assessment of Reading Years Prep to 2 Data Collection.

[11] Victorian government schools have been divided into 9 "like" school groups according to the background characteristics of their students. The groups are identified by the proportion of students whose first language is not English and the proportion of students who receive the Education Maintenance Allowance or Commonwealth Youth Allowance.

## Statewide testing program

**2.25** Since 1995, students in Years 3 and 5 have been monitored under a Statewide assessment and reporting program established by the Authority to help teachers better measure and improve student literacy and numeracy standards. From 1995 to 1999, this program was known as the Learning Assessment Program (LAP). In 2000, the Statewide assessment program was relaunched as the Achievement Improvement Monitor (AIM). Testing for Year 7 students was introduced on a voluntary basis in 2000 and mandated for all students from 2003.

**2.26** Key elements of the assessment and monitoring program include:

- *Classroom assessment resources*: assist teachers to assess student achievement against the Framework levels by providing progress maps and samples of student work that illustrate achievement of learning outcomes;

- *Homework guides*: help parents and students implement the best approaches to homework and determine how school work outside school hours can assist student learning;

- *Online Assessment Program*: provides a web-based application that teachers can use to download various mathematics and English tests that are mapped to the Framework levels. Currently, this application is being trialled with Year 7 students in 72 schools;

- *Statewide testing*: of students in Years 3, 5 and 7 by a testing instrument set by the Authority in mathematics, English, spelling and writing; and

- *Reporting*: to schools and parents on achievements of individual students and groups of like schools.

## Literacy improvement programs

**2.27** The 3 key literacy improvement programs developed by the Department are described in the following paragraphs.

### *Early Years Literacy program*

**2.28** Progressively introduced from 1997, with full Statewide implementation in 1999, the Early Years Literacy program[12] assists schools to plan for improved early literacy achievement for all students in the first 5 years of schooling (Years Prep to 4). It consists of guidelines for teachers, professional development modules, parent programs and videos.

**2.29** Essential features of the program include:

- use of a whole school design model for school improvement which is based on a shared belief in the capacity of all students to achieve high standards given sufficient time and support;

- a daily, 2 hour, focused classroom literacy session;

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[12] Between 1996 and 1998, this program was known as Keys to Life.

- case management of students who require additional assistance;
- implementation of training programs for parents and other classroom personnel to help them support the classroom teacher; and
- the appointment of an Early Years Co-ordinator to co-ordinate the program.

## Reading Recovery program

*2.30*   Developed and implemented in New Zealand by Clay[13] and colleagues, the Reading Recovery program is a comprehensive system for identification and assistance of "at-risk" readers in Year 1. Although the program was introduced in Victorian schools in 1984, specific funding was not provided by the Department until 1999. The program commences with face-to-face reading assessment using a set of diagnostic tasks that assess, among other things, knowledge of the alphabet and the sounds made by combinations of letters. Low performance in these assessments leads to inclusion of students in intensive programs of systematic one-to-one instruction. This approach has also been implemented in parts of South Australia, Tasmania, Queensland, New South Wales, the United Kingdom, Canada and the United States of America.

*2.31*   Reading Recovery is an early intervention program designed to assist children in their second year of schooling who have the lowest achievements in reading and writing literacy. The aim of the program is to bring these lowest achieving students up to the average levels of performance achieved by their class[14]. Students in the program receive a daily 30-minute lesson in addition to the regular classroom reading and writing program. Students remain in the program until they have developed strategies that will allow them to participate effectively in the reading and writing activities in their classrooms. This usually takes between 12 and 20 weeks.

## Restart program

*2.32*   The aim of the Restart program is to improve the literacy levels of Year 7 students most "at-risk" of not achieving satisfactory standards. Anticipated key outcomes of the program include:

- improved literacy outcomes for identified Year 7 students;
- provision of specific support to identified students;
- support for lower achieving students linked to teaching and learning in all key learning areas;
- increased student self-esteem, confidence and motivation; and
- development of teachers' knowledge about literacy learning and expansion of teachers repertoires.

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[13] MM Clay, *Reading: The Patterning of a Complex Behaviour*. Heinemann: Auckland, New Zealand, 1983.

[14] MM Clay, *Reading Recovery: the wider implications of an educational innovation*. In A Watson and A Badenhop (Eds) Prevention of Reading Failure, Ashton Scholastic: Gosford, Australia, 1992. pp. 22-47.

**2.33**  Under the Restart program, funding is provided over a 3-year period (2002-2004) for 100 EFT additional, appropriately qualified teachers employed in 101 secondary schools[15]. Schools were selected based on Year 7 literacy achievement, Special Learning Needs (SLN) index, Aboriginal and Torres Strait Islander (ATSI) enrolments and Victorian Certificate of Education achievement data. Each participating school receives funding for the program through their School Global Budget.

**2.34**  Schools select their lowest performing (reading) Year 7 students to participate in the program. The next 5 lowest performing students are selected to become a comparison or "control" group.

**2.35**  In contrast to the Reading Recovery program, Restart teachers have more flexibility to provide a range of assistance to students to address individual needs (e.g. within class, one-to-one and in a small group). Schools use a variety of teaching strategies that focus on the key areas of reading fluency and comprehension, and vocabulary development.

## LITERACY FUNDING PROVIDED TO SCHOOLS

**2.36**  Since 1994, School Global Budgets have been the primary mechanism to fund educational programs, including literacy programs. Through the School Global Budget, schools have the responsibility to make decisions, set priorities and allocate resources to best support the effective delivery of their educational programs in order to meet student learning needs.

**2.37**  The School Global Budget provides funding in accordance with the following 6 components:

- *Core*: Major component covering salaries, allowances and on-costs for principals, teaching, non-teaching and support staff; teacher relief costs; operating costs, including administration, cleaning, maintenance and minor works expenditure. Core funding also includes targeted funding for the Early Years Literacy program to provide a co-ordination role for each school, and a one-to-one intervention program, with Reading Recovery as the recommended program;

- *Students with disabilities*: Covers cost of integration teachers and aides; paramedical support; and specialised equipment;

- *Students with special learning needs (SLN)*: Covers costs to support those students considered "at-risk" of not achieving educational standards, with particular emphasis on students with literacy problems. A specially calculated SLN index for each school takes into account socio-economic factors assessed as potentially impeding students' ability to learn, such as: family circumstances; occupational status; Aboriginality; transience (i.e. frequent changes of school) and family income;

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[15] EFT is equivalent full-time. Restart schools received funding for between 0.5 and 2.4 EFT.

- *English as a second language (ESL)*: Covers the provision of ESL programs for students who have a Language Background Other Than English (LBOTE) as their main language and have been enrolled in an Australian school for less than 7 years;

- *Rurality and isolation (RI)*: Covers non-metropolitan and non-provincial schools in recognition of the impact of school size on a school's ability to provide breadth in curriculum, and the impact of school location on the cost of providing a range of educational services; and

- *Priority programs*: Covers initiatives which are central to government education policy or are specific to the needs of individual school communities such as the Restart program, ATSI educators and reducing class size initiatives.

**2.38**  The nature and basis upon which the 3 literacy improvement programs are funded are described in Figure 2C.

**FIGURE 2C**
**BASIS OF FUNDING ALLOCATION FOR LITERACY IMPROVEMENT PROGRAMS**

| *Program and funding period* | *Number of students* | *Nature and basis of allocation* |
|---|---|---|
| Early Years Literacy<br>1999 onwards | 45 000 (average per year) | Funding assists in the provision of a literacy co-ordinator. Key roles include supporting implementation of the program, facilitating team planning and provision of professional development. Funding is based on the number of students in Years Prep to 2 at each school (capped at 200 students). |
| Reading Recovery<br>1999 onwards | 7 900 (average per year) | Provided to all schools based upon the number of Prep to Year 2 students. Funding assists in the provision of Reading Recovery as a recommended intervention program (around 1 350 teachers Statewide). Schools make local decisions for texts and consumables. Funds are provided to meet assistance for approximately 20 per cent of Year 1 students. This funding is further supplemented in certain circumstances. |
| Restart<br>2002 to 2004 | 1 470 (in the first year) | Funding provided for 3 years (2002 to 2004) for 101 secondary schools (33 per cent of all secondary schools). Covers cost of Restart teachers/s' to provide targeted literacy intervention for Year 7 students identified by testing as most "at-risk" of not achieving satisfactory literacy levels. Funding is based upon both the number of Year 7 students at each school (capped at 320 students), and its SLN index. |

*Source*: Victorian Auditor-General's Office.

**2.39** Figure 2D shows that, since 1999, more than $100 million has been directed each year at literacy improvement programs in Victorian government primary and secondary schools.

**FIGURE 2D**
**FUNDING PROVIDED TO VICTORIAN SCHOOLS**
($'000)

| Literacy program | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Early Years Literacy (a) | 26 500 | 47 000 | 52 000 | 74 250 | 75 100 | 78 000 | 77 400 | 75 900 |
| Reading Recovery | n.a. | n.a. | n.a. | 27 000 | 28 000 | 31 400 | 30 600 | 28 700 |
| Restart | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 4 900 | 5 100 |
| **Total** | **26 500** | **47 000** | **52 000** | **101 250** | **103 100** | **109 400** | **112 900** | **109 700** |

*(a)* Between 1996 and 1998, this program was known as Keys to Life. Funding over this period was allocated to schools for improving student literacy proficiency. Schools used these funds at their discretion. From 1999, additional substantial funding was provided to support schools specifically in the provision of an early years co-ordinator.
*Source*: Department of Education and Training.

**2.40** Following the findings of the Early Years Research project, the funding provided under the Keys to Life program for literacy improvement was increased in 1999 to assist in the provision of early years literacy co-ordination and to fund daily one-to-one assistance for students in Year 1 whose literacy progress is most "at-risk". While Reading Recovery is the recommended one-to-one intervention program, schools have the freedom to implement other literacy improvement programs to support students requiring daily assistance. This additional funding has resulted in the employment each year of around 1 000 extra teachers (EFT). This represents approximately 6 per cent of the total teacher work force.

## FOCUS OF THE AUDIT

**2.41** Recent Victorian Government literacy initiatives centre on 3 major literacy improvement programs initiated by the Department (Early Years Literacy, Reading Recovery and Restart). This audit assessed the efficiency and effectiveness of these programs in Victorian government schools. Specifically, it examined the extent to which:

- the progress of students that participated in literacy improvement programs was greater than their progress had they not participated and was sustained over time;

- resource allocation methods for programs were appropriate; and

- literacy proficiency information collected was complete, accurate and appropriately used for decision-making and reporting.

**2.42** In terms of student progress over time, this audit sought to answer the following questions:

- Has the reading proficiency of students at Years 3, 5 and 7, as measured by LAP/AIM tests, improved over time?;

- Has the Early Years Literacy program had a positive impact on students' reading proficiency, as measured by Instructional Text Level? [16];

- Has the Reading Recovery program had a positive impact on reading proficiency of participating Year 1 students, as measured by Instructional Text Level?[17]; and

- Has the Restart program had a positive impact on the reading proficiency of Year 7 students identified most "at-risk" of not achieving satisfactory reading proficiency levels, as measured by the Developmental Assessment Resource for Teachers?[18].

**2.43** In Parts 3, 4 and 5 of this report, we address each of these questions and present the results of our analyses based on student reading proficiency data collected by the Department and Authority.

**2.44** Part 6 of this report addresses ways in which outcomes of the Government's investment in literacy improvement programs could be improved, including the allocation of these resources. In Parts 7 and 8, respectively, we examine how student literacy data is used by schools, the Department and the Authority, and the processes and information systems supporting the collection and analysis of student literacy data.

**2.45** The audit did not assess the literacy curriculum, teaching strategies, teacher assessments of student reading proficiencies against the Curriculum and Standards Framework or the assessment instruments used to measure student reading proficiency. The assessment instruments used by teachers to measure the reading proficiency of students in literacy improvement programs, and the instrument used in the Statewide testing program, are recognised as reliable measures of reading proficiency within the educational assessment community.

**2.46** A complete description of the audit's objectives, scope and methodology is detailed in Appendix A of this report.

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[16] Reading proficiency of students in the Early Years Literacy program is assessed by teachers using Instructional Text Level (ITL). ITL is a score level from a standard, graded series of early reading texts that a student is currently capable of reading.

[17] Instructional Test Level (ITL) is one of 7 sub-tests from the *Observation Survey of Early Literacy Achievement* used by teachers to assess the reading proficiency of students in the Reading Recovery program. Only ITL scores were used in this part of the audit.

[18] Reading proficiency of students in the Restart program is assessed by teachers using the Developmental Assessment Resource for Teachers (DART). It is an assessment package developed by the Australian Council for Educational Research designed to assist teachers in their assessment of students' reading, listening, viewing, speaking and writing skills. Assessment tasks are integrated and thematic, accompanied by guidelines for judging and rating student performance on Rasch scales of measurement.

# Part 3

# Trends in student literacy achievement

# INTRODUCTION

*3.1*      This Part of the report presents the results of our analyses of trends in student literacy achievement using reading proficiency data collected by the Victorian Curriculum and Assessment Authority between 1996 and 2002. The data were derived from Statewide testing as part of the Learning Assessment Program (LAP)/Achievement Improvement Monitor (AIM) program, and cover the progress of students in Years 3, 5 and 7.

## Measurement issues

*3.2*      The LAP/AIM tests have used different assessment tasks between years. To make valid comparisons of LAP/AIM data across years, this inconsistency must be reported on a common scale. The Rasch measurement methodology for scale construction[1] and equating[2] used by the Authority was accepted for the purposes of this audit.

*3.3*      The use of this methodology allows the relative difficulties of items and tests to be separated from student performance. This is important because it means that any change in student performance across years is not misinterpreted as a reflection of the test being more or less difficult. Rather, it is a valid indication of change in student performance.

*3.4*      Figure 3A shows the LAP/AIM reading test difficulty[3] from 1996 to 2002 for Years 3, 5 and 7.

---

[1] Rasch measurement is a particular form of objective measurement. It involves the construction of an interval scale on which performance on each task included in one or more linked tests is located relative to the other tasks. In 1999, the Authority made all LAP/AIM tests comparable by calibrating tests from 1996 to 1999 onto the same scale, i.e. the 1999 "historical scale". Subsequently, LAP/AIM tests conducted between 2000 and 2002 were also calibrated onto the "historical scale".

[2] Equating is a statistical procedure whereby scores from 2 or more tests are placed onto the same measurement scale so that they are directly comparable.

[3] LAP/AIM reading test difficulty is expressed in logits. A logit is a unit of measurement on the Rasch scale.

**FIGURE 3A**
**LAP/AIM READING TEST DIFFICULTY**
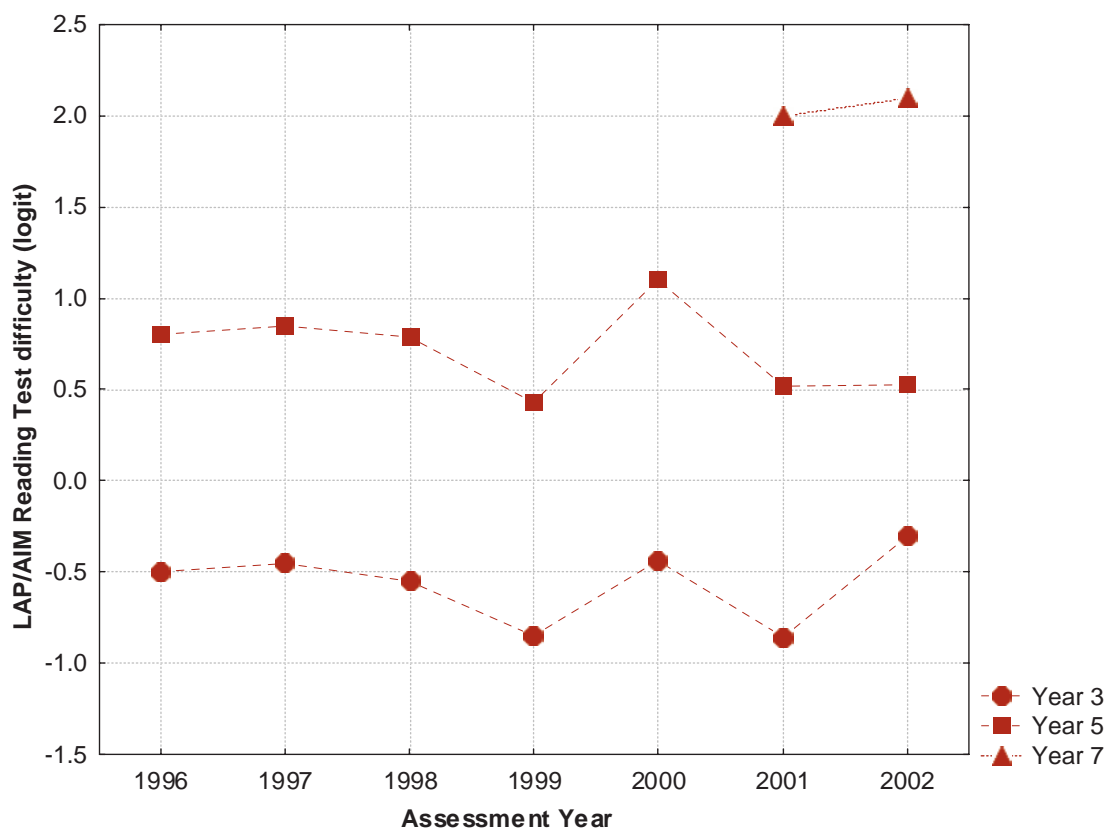


*Source*: Victorian Auditor-Generals' Office.

**3.5**    Figure 3A shows that:

- the relative difficulties of LAP/AIM tests at each Year level have not varied greatly over time; and

- as designed and expected, the Year 7 reading tests were more difficult than the Year 5 tests, and the Year 5 tests were more difficult than the Year 3 tests.

## Presentation of analyses

**3.6**    In presenting the results of our analyses, we used  "box and whisker" plots. An example of a "box and whisker" plot, which is a standard way of presenting the range of student literacy achievement, is shown in Figure 3B.

**FIGURE 3B**
**EXAMPLE OF A "BOX AND WHISKER" PLOT**
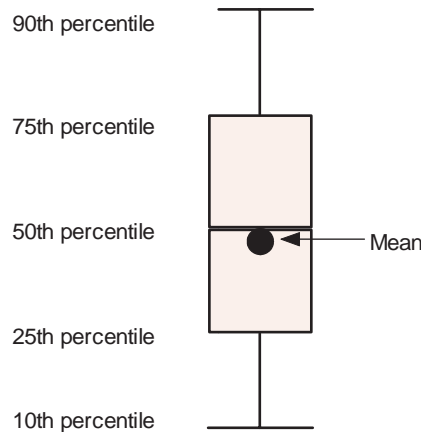


*Source*: Victorian Auditor-General's Office.

**3.7**     The "box" shows  the location of the "middle" 50 per cent of the distribution, being bounded by the 25th and 75th percentiles, respectively. The "whiskers" indicate the 90th and 10th percentiles, respectively, such that the top 10 per cent of students have scores greater than the 90th percentile value, and the bottom 10 per cent of students have scores less than the 10th percentile value. The central horizontal "bar" is the median value (i.e. 50th percentile), the value above and below which 50 per cent of the cases lie. The solid circle below the median is the mean, or average value.

**3.8**     We examined the LAP/AIM data in terms of the:

- relationship between student reading literacy achievement and the school's Special Learning Needs (SLN) index[4]; and

- amount of variation in students' reading literacy achievements that could be explained by student intake characteristics (i.e. gender, language background other than English [LBOTE] and indigenous status (Aboriginal and Torres Strait Islander [ATSI]), school SLN index (i.e. location on the index) and school attended by the student (regardless of its SLN index).

**3.9**     Appendix B of this report provides details of the number of students, including student sub-groups, for whom LAP/AIM data were available between 1996 and 2002, and for whom Reading Recovery data were available between 1999 and 2001.

---

[4] SLN funding supports programs that focus on students "at-risk" of not achieving success at school with particular emphasis on students with literacy problems. The SLN component of the School Global Budget provides funding to schools through the SLN index, comprising 6 indicators with different weightings. These include the proportion of students receiving the Educational Maintenance Allowance or Youth Allowance, who transfer into the school during the year, who are of ATSI background, whose first language is not English, and a measure of family status and occupational status. A high SLN index indicates that the school has a significant proportion of students with these characteristics.

# ACHIEVEMENTS OF YEARS 3, 5 AND 7 STUDENTS

**Audit question**

Has the reading proficiency of students at Years 3, 5 and 7, as measured by LAP/AIM tests, improved over time?

**Audit finding**

Between 1996 and 2002, there has been little average improvement in reading proficiency of all students at Years 3, 5 and 7, as measured by LAP/AIM tests. There has been a small improvement in the reading proficiency of students in the lower deciles at Year 3 in 2002 and at Year 5 between 2000 and 2002.

**3.10**    In considering the achievements of Years 3, 5 and 7 students, it should be noted that the increased resourcing for the 3 literacy improvement programs examined in this audit commenced from 1999. The first indication of the impact of the Early Years Literacy program should be evident for participants at Year 3 from 2000 and at Year 5 from 2002, and for the Reading Recovery program, for participants at Year 3 from 2001.

## Year 3 students

**3.11**    Figure 3C shows the distributions for Year 3 students' reading achievements between 1996 and 2002, as measured by LAP/AIM tests.

**FIGURE 3C**
**YEAR 3 STUDENTS'**
**LAP/AIM READING ACHIEVEMENT SCALE SCORES**
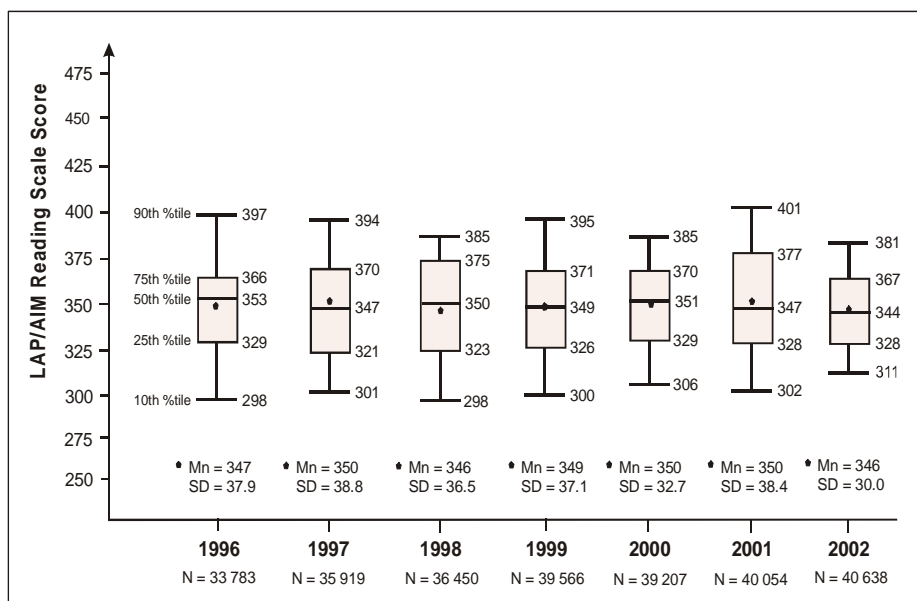


*Legend*: Mn is the mean score; SD is the standard deviation; N is the number of students.
*Note*: The standard deviation is a measure of the spread of scores around the mean score.
*Source*: Victorian Auditor-General's Office.

**3.12**    As shown in Figure 3C, the variation of scores, including the mean score, has remained relatively stable over the 7 years. The figure does, however, show a small improvement in the reading achievement of students in the bottom decile for 2002. This is reflected by a shortening in the "whisker" between the 25th and 10th percentiles.

## Year 5 students

**3.13**    Figure 3D shows the distributions for Year 5 students' reading achievements between 1996 and 2002, as measured by LAP/AIM tests.

**FIGURE 3D**
**YEAR 5 STUDENTS'**
**LAP/AIM READING ACHIEVEMENT SCALE SCORES**
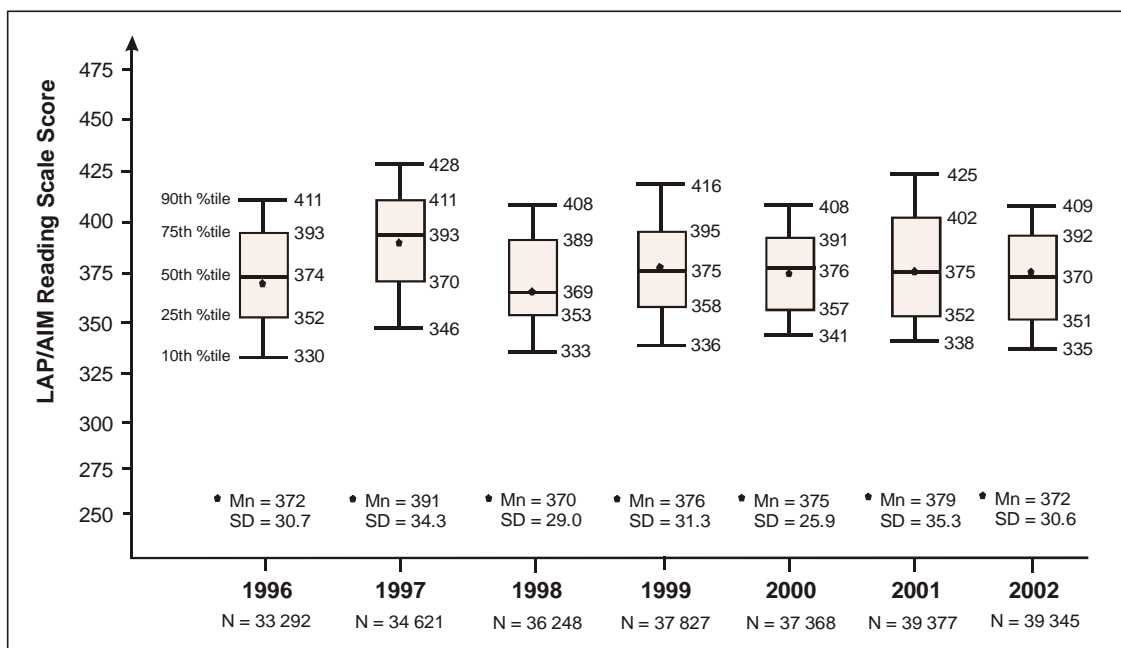


*Legend*: Mn is the mean score; SD is the standard deviation; N is the number of students.
*Source*: Victorian Auditor-General's Office.

**3.14**    Figure 3D shows that, with the exception of the 1997 data, scores by the Year 5 cohorts over the assessment years showed little or no average improvement. The reason for the difference in the 1997 results is unclear, but likely to be due to equating errors. There was a small improvement between 2000 and 2002 in the reading achievement of Year 5 students in the bottom deciles, indicated by a shortening in the "whisker" between the 25th and 10th percentiles.

# Year 7 students

**3.15**    Figure 3E shows the distributions for Year 7 students' reading achievements between 2001 and 2002, as measured by LAP/AIM tests.

**FIGURE 3E**
**YEAR 7***(a)* **STUDENTS'**
**LAP/AIM READING ACHIEVEMENT SCALE SCORES**
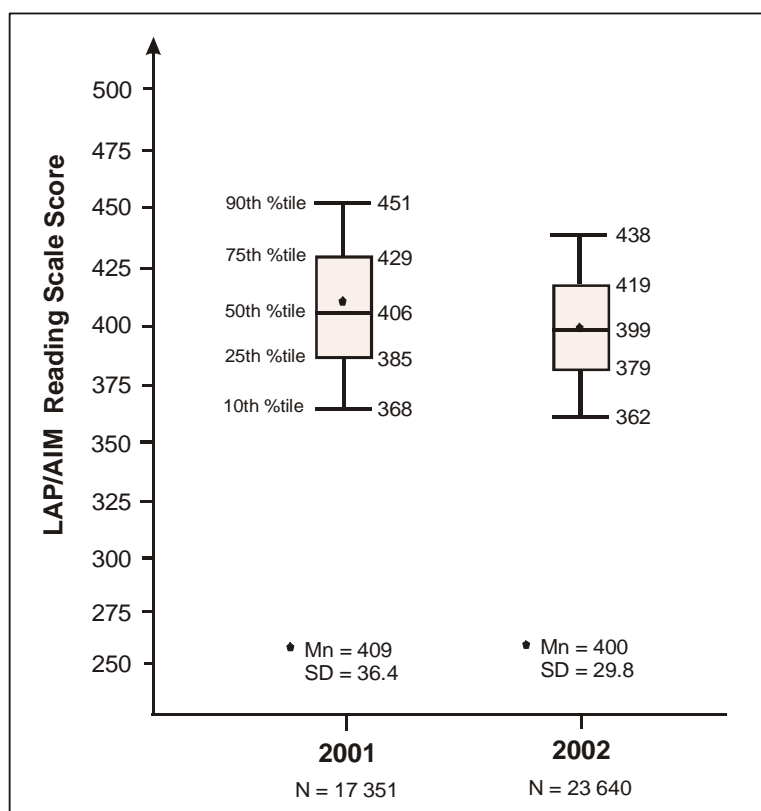


*(a)* Not all students in Year 7 participated in the testing program during this period. All Year 7 students will participate in AIM testing from 2003.

*Legend*: Mn is the mean score; SD is the standard deviation; N is the number of students.

*Source*: Victorian Auditor-General's Office.

**3.16**    Figure 3E shows that there was a small decline in mean and median reading achievement scores for Year 7 students between 2001 and 2002. A longer time series of testing data is needed before more evaluative comment can be made on student achievements.

# Differences in achievement between students and schools

**3.17**    For Years 3, 5 and 7 students, we undertook analyses of scores for sub-groups of students and schools. Consistently, we found:

- a weak relationship between the school SLN index and students' reading results, with correlations ranging from 0.02 to 0.27 in favour of schools with low special learning needs (Figures C1, C3 and C5 in Appendix C provides details of these analyses); and

- student intake characteristics (i.e. gender, LBOTE and ATSI) and school SLN index explained only a small proportion of the variation in student performance, ranging from 4.4 per cent to 10.2 per cent (Figures C2, C4 and C6 in Appendix C provides details of these analyses).

**3.18**    International and Australian research has demonstrated that between 30 and 40 per cent of the differences in learning outcomes between students is associated with variation in the quality of teaching in individual classrooms and programs within schools[5,6,7]. Our analyses are not able to show the relative amount of these influences.

## Summary

**3.19**    The findings presented above are of all Years 3, 5 and 7 students who participated in the LAP/AIM Statewide testing program between 1996 and 2002. There was little change in the average performance of all students over this time. Of greater concern was the relatively small improvement over this period in the performance of students in the lowest deciles. It is these students who are most in need of additional assistance.

**3.20**    In Parts 4 and 5 of this report, we examine the impact of the Department's literacy improvement programs in the early years (Early Years Literacy and Reading Recovery ) and the middle years (Restart) aimed at improving student reading proficiency.

> **RESPONSE** *provided by Secretary, Department of Education and Training*
>
> *The Department believes that it is too early to assess the long-term impact of the Early Years Literacy and Reading Recovery programs. The effects of these initiatives cannot be fully assessed until AIM data for the Year 5 cohort recently tested in 2003 and later cohorts who have been involved in the programs are available.*

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[5] PW Hill, KJ Rowe, P Holmes-Smith and VJ Russell, *The Victorian Quality Schools project: A study of school and teacher effectiveness. Report to the Australian Research Council (Volume 1 Report).* Centre for Applied Educational Research, Faculty of Education, The University of Melbourne, Victoria, 1996.

[6] J Scheerens and R Bosker, *The foundations of educational effectiveness*. Pergamon: Oxford, 1997.

[7] JD Willms, Monitoring school performance for standards-based reform. Evaluation and Research in Education, Volume 14, 2000, pp. 237-53.

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The general tenor of this finding is consistent with expectations, although a clearer picture should emerge in years to come. The finding of a small improvement for the lowest performing students is encouraging. While across-the-board improvement would be very welcome, it must be remembered that 2 of the 3 literacy intervention programs were directed at improving the outcomes of the lower achievers.*

# Part 4

# Impact of literacy improvement programs in the early years

# INTRODUCTION

*4.1*      As indicated in Part 2 of this report, the majority of the Government's investment in literacy initiatives has focused on the early years of schooling, (i.e. Years Prep to 2). This period of schooling is crucial for ensuring that students are helped to develop strong foundational literacy skills. Those students who do not acquire these skills by the end of primary school are unlikely to make up the gap in the later years of schooling[1].

*4.2*      In this Part of the report, we examine the impact of the Department of Education and Training's 2 literacy improvement programs on the reading proficiency of students in the first 3 years of their schooling (Early Years Literacy and Reading Recovery). The results of our analyses are based on data collected by the Department and derived from teacher assessment of the reading proficiency (using Instructional Text Level [ITL]) of students who participated in these improvement programs between 1998 and 2002.

*4.3*      In order to determine whether any observed improvements from program participation were sustained over time, we examined the subsequent performance of these students in the Learning Assessment Program [LAP]/Achievement Improvement Monitor [AIM] Statewide testing program. These data were collected by the Victorian Curriculum and Assessment Authority.

## Design issues

*4.4*      Expanded access to literacy improvement programs began in 1999. The students who had access to these programs are still at school, so their longer-term outcomes (e.g. at the Victorian Certificate of Education level) cannot be determined at this stage. The first cohorts to access the Early Years Literacy program were in Years Prep to 2 in 1999 and were in Years 3 to 5 in 2002.

*4.5*      Student reading proficiency is monitored with different assessment scales:

- in the Early Years Literacy program (Years Prep to 2) and the Reading Recovery program (Year 1), students are assessed by teachers using ITL[2]; and
- in Years 3, 5 and 7, students are assessed by the LAP/AIM scale.

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[1] Commonwealth Department of Education, Science and Training. *Literacy for All: The Challenge for Australian Schools, Commonwealth Literacy policies for Australian Schools*, Australian Schooling Monograph Series No. 1, Commonwealth of Australia: Canberra, ACT, 1998.

[2] Instructional Text Level (ITL) is one of 7 sub-tests from the *Observation Survey of Early Literacy Achievement* used by teachers to assess the reading proficiency of students in the Reading Recovery program. ITL is a score level from a standard, graded series of early reading texts that a student is currently capable of reading. Only ITL scores were used in this part of the audit.

*4.6*     Student reading proficiency data is collected in different formats, namely:

- in an aggregated form for the Early Years Literacy program, thereby preventing tracking of the progress of individual students over time; and

- at the individual student-level for the Reading Recovery and Restart programs and LAP/AIM Statewide testing program.

## EARLY YEARS LITERACY PROGRAM

**Audit question**

Has the Early Years Literacy program had a positive impact on students' reading literacy proficiency?

**Audit finding**

The Department's analysis of its aggregated data indicates that students who have participated in the program have improved their reading proficiency. We were unable to determine the direct impact of the program at the individual student-level since the Department does not collect this data. Our analysis, using LAP/AIM data, was unable to determine whether the improvement was sustained over time.

*4.7*     Schools were initially given wide discretion in the use of funding provided for the Keys to Life program (1996 to 1998), provided it was directed towards improving the teaching of literacy (e.g. employing additional literacy teachers and reducing class sizes). Consequently, the program's implementation varied between schools limiting our ability to reliably attribute any improvement in the literacy achievement of students to participation in the Keys to Life program. Statewide implementation of the Early Years Literacy program in 1999 was more prescriptive. Schools were required to develop an Early Years Literacy Plan in order to receive funding for the program. The aim of this arrangement was to ensure standardised implementation of the individual elements of the program.

**4.8** Since 1999, all Victorian government schools have been required to conduct end of year assessments of the reading proficiency of all Years Prep to 2 students[3] using Running Records[4] on standard level texts[5] previously unseen by students. In doing so, schools commit to achieving Statewide minimum standards for reading for students in their first 2 years of schooling. The standards for reading were determined following the results of the Early Literacy Research Project and require:

- 80 per cent of students (deemed as capable) reading benchmark texts with 90 per cent accuracy at or above text level 1 by the end of their first year of schooling (i.e. Year Prep); and

- 100 per cent of students (deemed as capable) reading benchmark texts with 90 per cent accuracy at or above text level 5 by the end of their second year of schooling (i.e. Year 1).

**4.9** In 2002, the Statewide minimum standards were met by 93.4 per cent and 99.3 per cent of students, respectively.

**4.10** Figure 4A shows the percentage of students reading text levels with more than 90 per cent accuracy for Years Prep to 2 between 1998 and 2002. Student achievement is shown against the most difficult text level at Years Prep to 2 (i.e. text level 5, 15 and 20, respectively), rather than the Statewide minimum standard, as the more difficult text levels are regarded as a better discriminator of reading ability.

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[3] This is known as the Assessment of Reading, Years Prep to 2 Data Collection. It involves teacher assessment of the accuracy with which students in Years Prep to 2 can read previously unseen standard texts of increasing levels of difficulty. Schools collect data against 4 benchmark levels: 1, 5, 15 and 20. Students in each year are assessed against several text levels, e.g. Prep (level 1 and 5); Year 1 (levels 1, 5 and 15) and Year 2 (levels 5, 15 and 20), with higher text levels better able to discriminate reading ability.

[4] Running records are an assessment strategy used by teachers to record a student's reading behaviour while it is happening.

[5] Of the 10 measures used in the Early Literacy Research Project, student text level was identified as the most significant indicator of reading achievement.

**FIGURE 4A**
**PERCENTAGE OF STUDENTS READING INSTRUCTIONAL TEXT LEVELS**
**WITH MORE THAN 90 PER CENT ACCURACY FOR YEARS PREP TO 2**
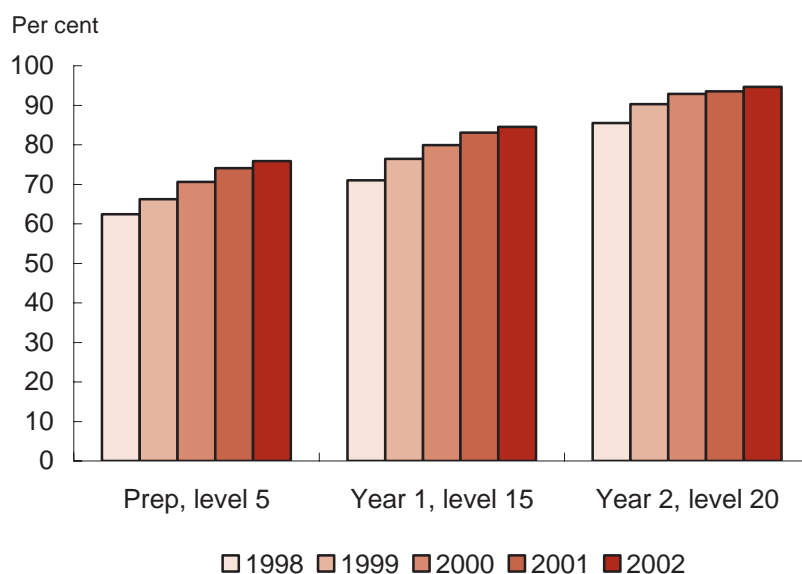


*Note*: In 1998, baseline data were collected from a sample of 550 volunteer schools at the end of the school year. Since 1999, data have been collected from all schools at the end of each school year.
*Source*: Department of Education and Training.

**4.11**    Figure 4A shows that there has been a continuing improvement in the reading performance of students in Years Prep to 2 between 1998 and 2002. This time frame matches the increased provision of resources to literacy improvement.

**4.12**    The collection of Statewide data on student reading levels provides an overall snapshot of the performance of students. However, as the Department collects only aggregated data from schools, it cannot examine performance at the individual student-level. Further, the Department cannot determine the long-term outcomes of the program as this data cannot be linked with the LAP/AIM test results.

**4.13**    In order to determine if the improvement in student reading proficiency shown in the Department's aggregated data was sustained, we tracked the achievement of students as they took the LAP/AIM tests in Years 3, 5 and 7. This involved an extensive process of matching students with complete data (i.e. LAP/AIM results in Years 3 and 5, and in Years 3, 5 and 7). This task was extremely difficult due to the absence of consistent recording of student and school details (e.g. student names and birth dates, school number), and the lack of unique school-level and student-level identifiers for LAP/AIM assessments.

**4.14**    The results reported in the following paragraphs describe the distributions of LAP/AIM reading scores for students where complete matching data could be found. These cohorts or sub-groups of students are shown in Figure 4B. Cohort 3, for example, comprises students who have data for Year 3 LAP/AIM in 1998, Year 5 LAP/AIM in 2000 and Year 7 LAP/AIM in 2002.

**FIGURE 4B**
**MATCHED LAP/AIM READING ACHIEVEMENT FOR 5 COHORTS**

| Cohort | N | Year 3 | Year 5 | Year 7 | Match |
|--------|------|--------|--------|-----------|-------|
| | | | | | *(%)* |
| 1 | 33 783 | 1996 | 1998 | *(a)* n.a. | 68 |
| 2 | 35 119 | 1997 | 1999 | 2001 | 24 |
| 3 | 36 450 | 1998 | 2000 | 2002 | 28 |
| 4 | 39 566 | 1999 | 2001 | *(b)* n.a. | 68 |
| 5 | 39 207 | 2000 | 2002 | *(c)* n.a. | 69 |

*(a)* Year 7 AIM testing program not conducted in 2000.
*(b)* Students in Year 7 but not yet tested.
*(c)* Students not yet in Year 7.
*Legend*: N is the total number of students.
*Note*: The number of students able to be tracked in each cohort is shown in Figure 4C.
*Source*: Victorian Auditor-General's Office.

**4.15**    For 3 of the 5 cohorts, we were able to track approximately two-thirds of the students. For the 2 cohorts of students that had undertaken 3 LAP/AIM tests (i.e. Years 3, 5 and 7), we were able to track approximately one-quarter of the students.

**4.16**    Figure 4C shows the distributions of the reading achievement scores on the LAP/AIM tests for each of the 5 cohorts. The performance of cohort 5 has the most relevance to the Early Years Literacy program, which was introduced Statewide in 1999.

**FIGURE 4C**
**LAP/AIM READING ACHIEVEMENT SCALE SCORES FOR 5 STUDENT COHORTS**
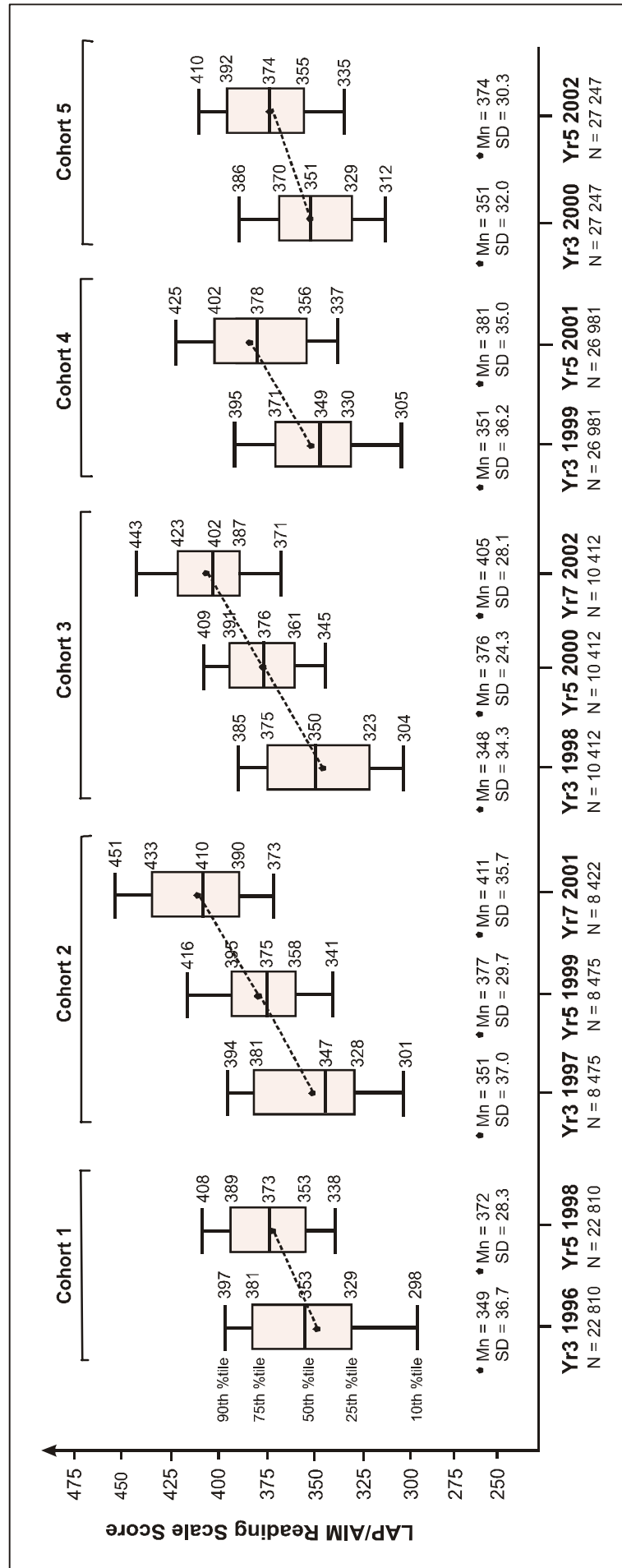


*Legend:* Mn is the mean score; SD is the standard deviation; N is the number of students able to be tracked.
*Source:* Victorian Auditor-General's Office.

**4.17**    Figure 4C shows that, on average, these 5 cohorts of Year 3 students made expected maturational progress in their LAP/AIM reading achievement scores by Year 5 and, where available, by Year 7. This can be seen by the gradient of the dotted lines between the box plots.

**4.18**    It can also be seen from Figure 4C that the spread of scores for Year 3 students (indicated by the difference in scores between the 90th and 10th percentile) has decreased between 1996 and 2002. This trend was most pronounced for cohort 5. An improvement was also found in the LAP/AIM scores of the lower performing Year 3 students  (i.e. between the 10th and 25th percentiles) in cohorts 3 and 5 compared with the other 3 cohorts. However, it is of some concern that, on average, 88 per cent of Year 3 students (mostly boys from English Speaking Backgrounds [ESB], Language Background Other than English [LBOTE] and Aboriginal and Torres Strait Islander [ATSI] backgrounds) in the lowest decile (i.e. below the 10th percentile) were still located in this decile when in Year 5 (for all 5 cohorts).

**4.19**    Despite better average performances by students at higher year levels, we are unable to determine the contribution of participation in the Early Years Literacy program to student performance. This is mainly because:

- the starting point of these students is not known because individual student-level data is not collected at Years Prep to 2;

- the gains due to a student's normal maturation, or "growth", are unknown;

- there are no data about the extent of the differences in implementation of the program across schools; and

- only one of the 5 cohorts (i.e. cohort 5) had participated in the Early Years Literacy program, which was introduced Statewide in 1999.

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The constraints under which the Victorian Auditor-General's Office conducted its inquiry meant that its conclusions were necessarily based on the post-hoc evaluation of a full-scale implementation rather than a planned trial. Consequently, the LAP/AIM data were unable to confirm the findings from the Department's literacy intervention program data.*

# READING RECOVERY PROGRAM

**Audit question**

Has the Reading Recovery program had a positive impact on the reading proficiency levels of participating Year 1 students?

**Audit finding**

Our analyses showed that while Year 1 students who participated in the Reading Recovery program improved their reading proficiency levels, participation has not ensured that all of these lower performing students reach the average achievement level of their peers. We were unable to determine how much of this improvement was directly due to participation in the program. There is also insufficient longitudinal data to assess whether this improvement in reading proficiency is sustained over time.

**4.20**     Figure 4D shows the ITL scores for Year 1 students participating in Reading Recovery (represented by the dark coloured box plots) in 1999 to 2001 and a comparative group of Year 1 students who did not participate in the Reading Recovery program (represented by the light coloured box plots)[6].

**4.21**     The box plots in the lower part of the figure describe the distribution of ITL scores for the Reading Recovery students at entry to the program and a comparative normative group at the beginning of the year. The box plots in the upper part of the figure describe the ITL scores for the Reading Recovery students at exit from the program and a comparative normative group at the end of the year.

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[6] As no normative data were available from the Department, comparative normative data for ITL were derived from 2 longitudinal studies. CA Crevola and PW Hill, *Evaluation of a whole-school approach to prevention and intervention in early literacy*. Journal of Education for Students Placed at Risk, 3, 1998, pp. 133-57. KJ Rowe, KS Rowe and J Pollard, *The value of PD and auditory processing screening by teachers of children in the early years of schooling*, Report to Department of Education and Training, 2002.

**FIGURE 4D**
**INSTRUCTIONAL TEXT LEVEL SCORES BY YEAR 1 STUDENTS**
**PARTICIPATING IN READING RECOVERY OVER 2 TIME PERIODS**
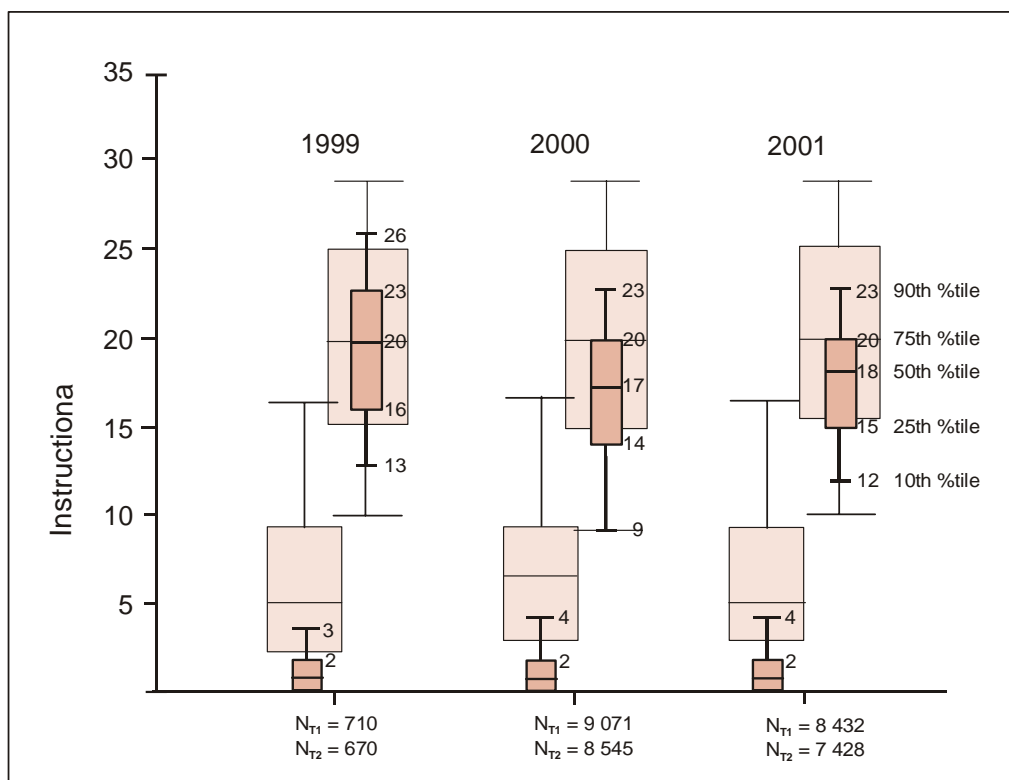


*Legend*: N1 is the number of Reading Recovery students at time 1 (T1). N2 is the number of Reading Recovery students at time 2 (T2).
*Note*: Although a total of 5 913 students participated in Reading Recovery in 1999, complete data at time 1 and time 2 were only available for 710 and 670 Year 1 students, respectively.
*Source*: Victorian Auditor-General's Office.

**4.22**    Figure 4D shows an improvement between time 1 and time 2 in the reading proficiency (as measured by ITL scores) of Year 1 students (62 per cent of whom were males) who participated in Reading Recovery. This result occurred for each of the 3 assessment years for which data are available (1999 to 2001), with the greatest improvement found in 1999. However, in terms of the program aim, participation did not bring the lower achieving students up to the average levels of performance of their peers. This result is shown by the different distributions of the light and dark coloured box plots for each year in the upper part of Figure 4D.

**4.23**    Interpretation of the improvement shown in Figure 4D must take into account an effect known as "regression-to-the-mean". That is, students who are lower initial achievers (as are the Reading Recovery participants), will appear to grow or improve more than those students at higher initial performance levels (as are the comparative group of students who did not participate in Reading Recovery). While the Department requires schools to assess all Year 1 students, it only collects data on those students selected into the Reading Recovery program. Had the data for all Year 1 students been available to audit, the amount of improvement that was directly due to the impact of the program could have been reliably determined.

**4.24**    Consistent with the related analysis for the Years 3, 5 and 7 student cohorts, we found a weak relationship between the school SLN index[7] and Year 1 students' reading results. Correlations ranged between 0.16 and 0.18 in favour of schools with low special learning needs (Figure C7 in Appendix C provides further details on this analysis).

**4.25**    Although the findings indicated that students selected for Reading Recovery improved their reading proficiency in each of the 3 assessment years, it is important to examine the extent to which these gains were sustained over time. In order to do this, we identified those students who had participated in Reading Recovery in Year 1 and had subsequently undertaken the AIM test in Year 3. From the available data we were able to track:

- 301 of the 670 (45 per cent) 1999 Reading Recovery students. These small numbers should be taken into account in reviewing the analysis; and

- 4 265 of the 8 545 (50 per cent) 2000 Reading Recovery students. We could not track the 2001 Reading Recovery students because they had not yet sat the Year 3 LAP/AIM test.

**4.26**    Figure 4E shows the distribution of LAP/AIM scores for those Reading Recovery students that we could track to Year 3 compared with all other Year 3 students. The latter group is shown as the "non-Reading Recovery" cohort.

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[7] The Special Learning Needs (SLN) index is an indicator of the proportion of a school's student population who are "at-risk" of not achieving success at school, including literacy achievement. The SLN index is comprised of 6 indicators with different weightings. These include the proportion of students receiving the Educational Maintenance Allowance, or Youth Allowance, who transfer into the school during the year, who are of Aboriginal and Torres Strait Islander (ATSI) background, whose first language is not English, and a measure of family status and occupational status. A high SLN index indicates that the school has a significant proportion of students with these characteristics.

**FIGURE 4E**
**COMPARISON OF THE 2001 AND 2002 YEAR 3 DISTRIBUTIONS OF STUDENTS' LAP/AIM READING ACHIEVEMENT SCORES FOR THE 1999 AND 2000 READING RECOVERY COHORTS WITH THE NON-READING RECOVERY COHORT**
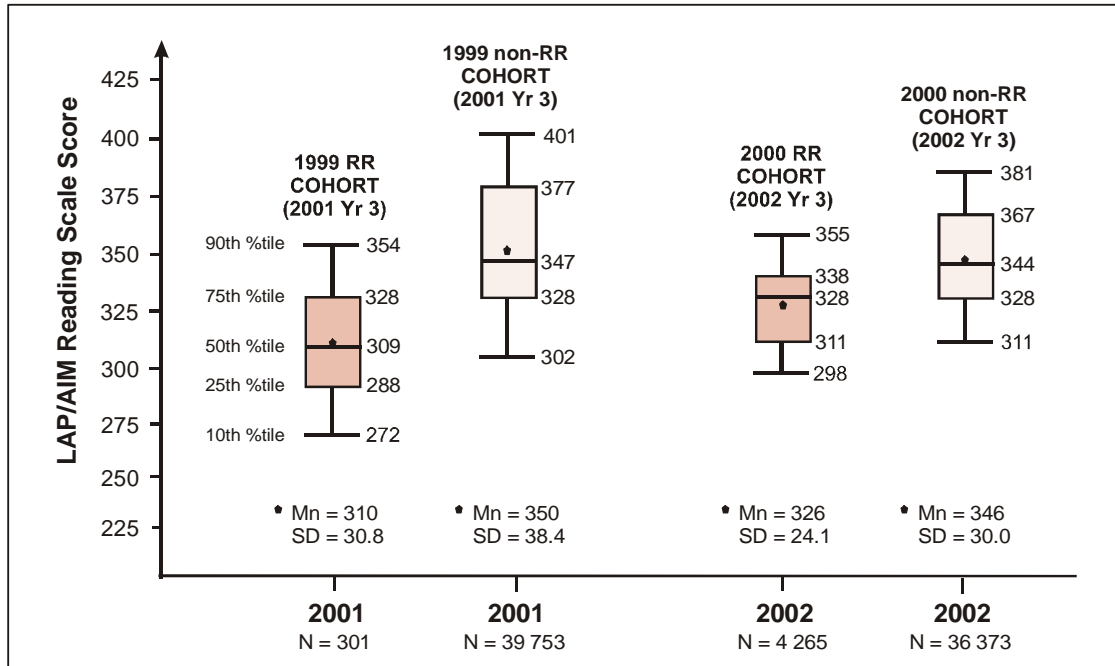


*Legend*: RR is Reading Recovery; Mn is the mean score; SD is the standard deviation; N is the number of students.
*Source*: Victorian Auditor-General's Office.

**4.27**    Figure 4E shows that the 2000 Reading Recovery cohort, which was much larger and had greater access to the program due to increased funding, has better achievement levels in Year 3 than the 1999 cohort. While their level of achievement did not reach that of all other Year 3 students, there was less variation in the distribution of scores for the Reading Recovery cohort compared with the remainder of the Year 3 cohort. However, there is insufficient longitudinal data (one year only) to assess whether the initial improvement in reading proficiency of Reading Recovery students (as shown in Figure 4D) was sustained in subsequent years.

**4.28**    Only small proportions of variation in student performance (i.e. 3 to 4 per cent) were attributable to student intake characteristics and school SLN index. In contrast to previous analyses, there was a higher proportion of residual variation due to differences between schools. This was especially large for the 2002 Reading Recovery cohort (17 per cent). Figure C8 in Appendix C provides details of this analysis. This result may reflect more rigorous implementation of the Reading Recovery program in those schools. International and Australian research indicates that such large variations at the school-level are typically associated with variations in the quality of teaching and learning provision within and between schools[8, 9, 10].

> **RESPONSE** *provided by Secretary, Department of Education and Training*
>
> *The Department welcomes the finding that the reading proficiency of Year 1 students participating in Reading Recovery has improved. The finding highlights the significance of this program within the Department's literacy initiatives.*
>
> *It is not reasonable to expect all lower performing students to reach the average achievement level of their peers. However, as demonstrated by the 2002 Year 3 AIM data indicating less variation in the distribution of scores for the Reading Recovery cohort compared with the remainder of the Year 3 cohort, the report shows that students who participated in the Reading Recovery program improved and moved closer towards the achievement level of their peers.*
>
> *The Department acknowledges that the data currently available are not conducive to establishing evidence of sustainability.*

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[8] P Cuttance, *Quality assurance reviews as a catalyst for school improvement in Australia*. In A Hargraves, A Lieberman, M Fullan and D Hopkins (Eds), *International Handbook of Educational Change*, Part II. Kluwer Publishers: Dordrecht, 1998, pp. 1 135-62.

[9] P Tymms, *Accountability – can it be fair*? Oxford Review of Education, 19, 1993, pp. 291-9.

[10] D Muijs and D Reynolds, *Effective teaching: Evidence and practice*. Paul Chapman Publishing: London, 2001.

# Part 5

# Impact of literacy improvement programs in the middle years

# INTRODUCTION

**5.1** The middle years (Years 5 to 9) are a critical stage of schooling. Findings related to student progress in literacy from the Victorian Quality Schools Project[1] showed that:

- students make the most progress in learning during the early years and the least progress during the early adolescent years; and

- the gap between the top and bottom 10 per cent of students grows rapidly over the middle years.

**5.2** Past research has shown that it is during the middle years that a significant number of students are "at-risk" of either not improving or falling behind the achievement levels of their peers. This is often evidenced by decreased motivation, low self-esteem and confidence, and poor literacy skills, and for some students, may result in non-completion of the compulsory years of schooling[2].

**5.3** In this Part of the report we examine the impact of the Restart program on the reading proficiency of Year 7 students identified most "at-risk" of not achieving satisfactory reading literacy levels. The results of our analyses are based on data collected by the Department of Education and Training and are derived from teacher assessment of the reading proficiency of students, using the Developmental Assessment Resource for Teachers (DART), who participated in the Restart program in 2002. Our analyses have also used achievement data of Restart participants in the Learning Assessment Program (LAP)/Achievement Improvement Monitor (AIM) Statewide testing program. This data was collected by the Victorian Curriculum and Assessment Authority.

## Design issues

**5.4** There is only one cohort of students available for assessment since the Restart program commenced in 2002. This means that it is too early to determine the longer-term outcomes of this program.

**5.5** The progress of students in the Restart program is assessed by teachers using a different instrument (DART) than that used in the 2 literacy improvement programs for students in the early years.

**5.6** As for the Reading Recovery program and the LAP/AIM Statewide testing program, data from the Restart program is collected at the individual student-level, thereby allowing the progress of individual students to be tracked.

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[1] P Hill, *Literacy Beyond the Early Years – A Victorian Perspective*, 1997.

[2] *The Middle Years, A Guide for Strategic Action in Years 5-9*, Department of Education and Training, Melbourne, 1999.

# RESTART PROGRAM

**Audit question**

Has the Restart program had a positive impact on the reading literacy achievements of Year 7 students identified most "at-risk" of not achieving satisfactory reading literacy levels?

**Audit finding**

The Department's and our analysis, using DART data, indicate that Year 7 students who have participated in the Restart program have improved their reading proficiency levels more than control students who have not participated in the program. However, it has not been possible to determine how much of this difference is directly due to participation in the program. Moreover, our analyses of the performance of students selected for the Restart program using LAP/AIM data do not support the results based on DART data. It is too early to assess any longer-term effects of the program.

## Departmental evaluation of the program

*5.7*      In 2002, the Department assessed the impact of the Restart program using the results of DART reading tests. Schools were required to administer the DART test to all Year 7 students at the beginning of Year 7. Teachers used the DART results, in conjunction with other assessment procedures, to select the lowest performing students to participate in the Restart program. The next 5 lowest performing students in each school were selected to form the control group.

*5.8*      Figure 5A shows the pre-test (beginning of year) and post-test (end of year) DART reading test results of the Restart group and the "Department's" control group.

**FIGURE 5A**
**RATE OF GROWTH IN READING PROFICIENCY OF YEAR 7 RESTART STUDENTS**
**AND DEPARTMENT CONTROL GROUP STUDENTS**
**ACCORDING TO THE PRE-TEST AND POST-TEST DART RESULTS, 2002**
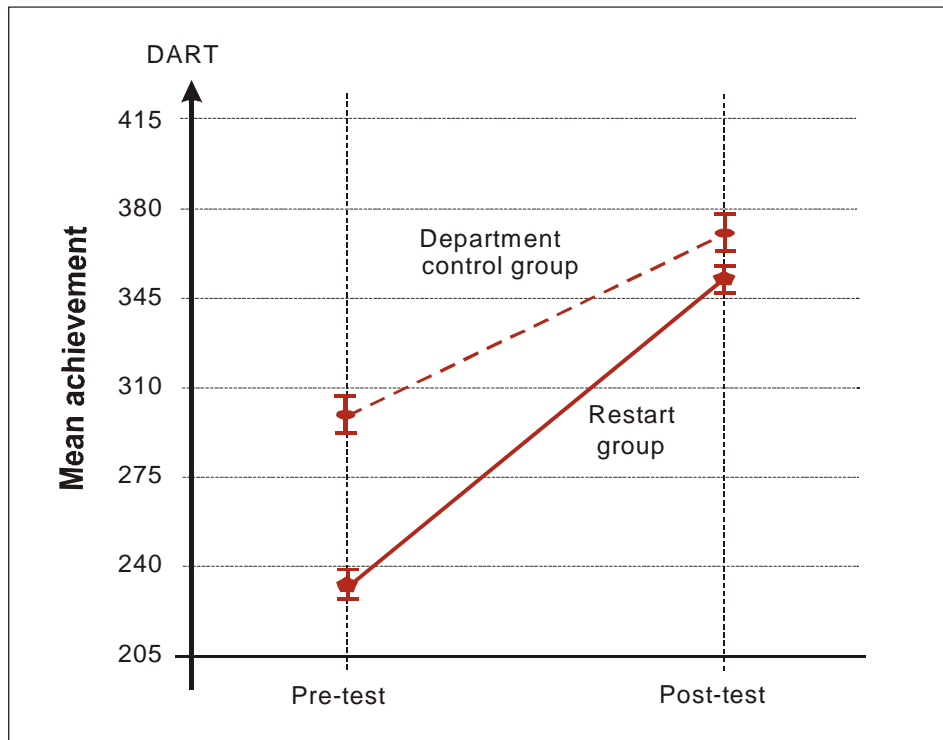


*Note*: The "Department" control group was selected from the same schools as the Restart group and consisted of students with pre-test DART scores higher than those of the Restart group in each school. Error bars indicate the 95 per cent confidence intervals around each mean score. Pre-test is assessment conducted at the beginning of the year prior to implementation of the Restart program. Post-test is assessment conducted at the end of the year, following completion of the Restart program.
*Source*: Victorian Auditor-General's Office.

**5.9** Figure 5A shows the mean growth for all students in the Restart and the "Department" control group. Our analysis showed that the change between pre-test and post-test is statistically significant for both groups, and the mean rate of growth of the Restart group is greater than that of the "Department" control group.

**5.10** Based upon analysis of the DART test scores of both groups of students, the Department concluded that Restart students made more progress than students in the control group. Specifically, its analysis showed that 72 per cent of Restart students improved their reading proficiency, while 27 per cent showed no improvement[3].

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[3] *Restart Initiative Report*, Department of Education and Training, 2002.

**5.11**   We consider that there are limitations with the Department's evaluation methodology. In interpreting the difference in growth between the 2 groups shown in Figure 5A, it must be recognised that:

- neither audit, nor the Department, can determine how much of the difference in growth between the Restart and control group students is due to an effect known as "regression-to-the-mean"[4] and how much is directly due to the impact of the Restart program; and

- the different achievement levels of the 2 groups at the start of the program do not allow a clear conclusion to be drawn about the impact of the Restart program.

## Audit analysis of DART results

**5.12**   While the Department requires that schools assess the reading proficiency of all Year 7 students at the start of the school year, it only collects this data for the students who are selected for the program. Due to the unavailability of data for the entire Year 7 population, it was not possible to address the magnitude of the "regression-to-the-mean" effect. To address the possible bias caused by different initial achievement levels, we identified the pre-test scores obtained by both Restart and control group students. Eighteen pre-test score groups were identified, with scores ranging between 130 and 454 DART units. These are shown in Figure 5B.

---

[4] In a pre-test post-test design, as used by the Department to evaluate the Restart program, students who are lower initial performers will appear to grow or improve more than those students at higher initial performance levels. This effect, known as "regression-to-the-mean", will occur irrespective of any intervention. Further discussion of this can be found in DT Campbell and MJ Russo, *Social Experimentation*, Sage Publications, California, 1999, pp. 259-79.

**FIGURE 5B**
**GROWTH OF STUDENTS IN THE RESTART PROGRAM (AS MEASURED BY
DART TESTS AT THE BEGINNING AND END OF YEAR 7), COMPARED WITH
THE GROWTH OF STUDENTS IN THE DEPARTMENT CONTROL GROUP
FOR EACH OF 18 PRE-TEST SCORE GROUPS**

| Score group | Pre-test (DART) score | Control N | Control post-test score | Control growth | Restart N | Restart post-test score | Restart growth | Difference in growth (DART) |
|---|---|---|---|---|---|---|---|---|
| 1 | 130 | 8 | 307 | 177 | 72 | 314 | 184 | 7 |
| 2 | 169 | 9 | 326 | 157 | 105 | 306 | 137 | -20 |
| 3 | 197 | 9 | 313 | 116 | 120 | 336 | 139 | 23 |
| 4 | 223 | 24 | 334 | 111 | 143 | 348 | 125 | 14 |
| 5 | 244 | 47 | 346 | 102 | 170 | 355 | 111 | 9 |
| 6 | 265 | 47 | 348 | 83 | 143 | 356 | 91 | 8 |
| 7 | 282 | 71 | 354 | 72 | 141 | 381 | 99 | 27 |
| **8** | **299** | **84** | **349** | **50** | **105** | **381** | **82** | **32** |
| 9 | 316 | 51 | 367 | 51 | 69 | 393 | 77 | 26 |
| 10 | 332 | 31 | 374 | 42 | 52 | 399 | 67 | 25 |
| 11 | 348 | 25 | 390 | 42 | 30 | 408 | 60 | 18 |
| 12 | 363 | 24 | 415 | 52 | 17 | 411 | 48 | -4 |
| 13 | 376 | 15 | 409 | 33 | 12 | 424 | 48 | 15 |
| 14 | 390 | 12 | 421 | 31 | 6 | 396 | 6 | -25 |
| 15 | 405 | 19 | 462 | 57 | 9 | 480 | 75 | 18 |
| 16 | 421 | 8 | 469 | 48 | 6 | 477 | 56 | 8 |
| 17 | 437 | 4 | 424 | -13 | 5 | 478 | 41 | 54 |
| 18 | 454 | 3 | 444 | -10 | 3 | 450 | -4 | 6 |

*Legend*: N is the number of students.
*Source*: Victorian Auditor-General's Office.

**5.13**    For each of the 18 score groups, we calculated the mean rate of growth for students in the Restart and control group by subtracting the pre-test score from the post-test score. Taking score group 8 as an example, Figure 5B shows that the growth of the control group was 50 DART units (349-299) and the growth of the Restart group was 82 DART units (381-299). The difference in growth for score group 8 was 32 DART units (82-50).

**5.14**    Figure 5B shows positive values for the last column (difference in growth) for 15 of the 18 score groups. A positive value indicates that the mean growth of the Restart group was greater than that of the "Department" control group. Although this re-analysis addresses the different starting points of the 2 groups, it still does not entirely eliminate the "regression-to-the-mean" effect[5]. In other words, the amount of difference in growth between the Restart and control group students that is due to the impact of the program cannot be reliably determined.

---

[5] DT Campbell and MJ Russo, *Social Experimentation*, Sage Publications, California, 1999, pp. 259-79.

**5.15**    Given that students in the score groups were drawn from a range of schools, we checked to see how much of the variation in students' performance was due to differences between schools. These analyses showed that only 15 per cent of the variation in students' performance on the DART post-test could be attributed to differences between schools.

**5.16**    Overall, the results of our analyses are consistent with those of the Department, albeit both analyses produced inconclusive results. An alternative approach to assessing the impact of the Restart program is achievable through using available LAP/AIM test results.

### Audit analysis of LAP/AIM test results

**5.17**    The Restart program is the first targeted literacy improvement program available after Year 2. The students in the Restart program are part of the cohort who undertook the Year 5 LAP/AIM test 2 years earlier in the year 2000, and the Year 7 LAP/AIM test in the year 2002. It was possible to track 577 (44 per cent) Restart students out of 1 321 who undertook the program to their 2 LAP/AIM test results.

**5.18**    Five "Audit" control groups were formed, each containing the same number of students in each score group of the Year 5 LAP/AIM test as the 577 Restart students. To form these control groups, students were selected at random within each score group. In this way, the growth of the Restart students between the end of Year 5 and the end of Year 7 (as measured with the LAP/AIM tests) was compared with the growth of 5 "Audit" control groups over this same 2-year period, with both groups having the same initial characteristics (including pre-test results).

**5.19**    Figure 5C shows the rate of growth (expressed in logits)[6] for the Restart group and the 5 "Audit" control groups. For comparison, the achievements of students in the "Department" control group (i.e. 202 students out of 511) are also shown.

---

[6] A logit is a unit of measurement on the Rasch scale.

**FIGURE 5C**
**STUDENTS' RATE OF GROWTH FOR THE RESTART GROUP,**
**DEPARTMENT CONTROL GROUP AND AUDIT CONTROL GROUP USING**
**LAP/AIM RESULTS BETWEEN YEARS 5, 2000 AND YEAR 7, 2002**
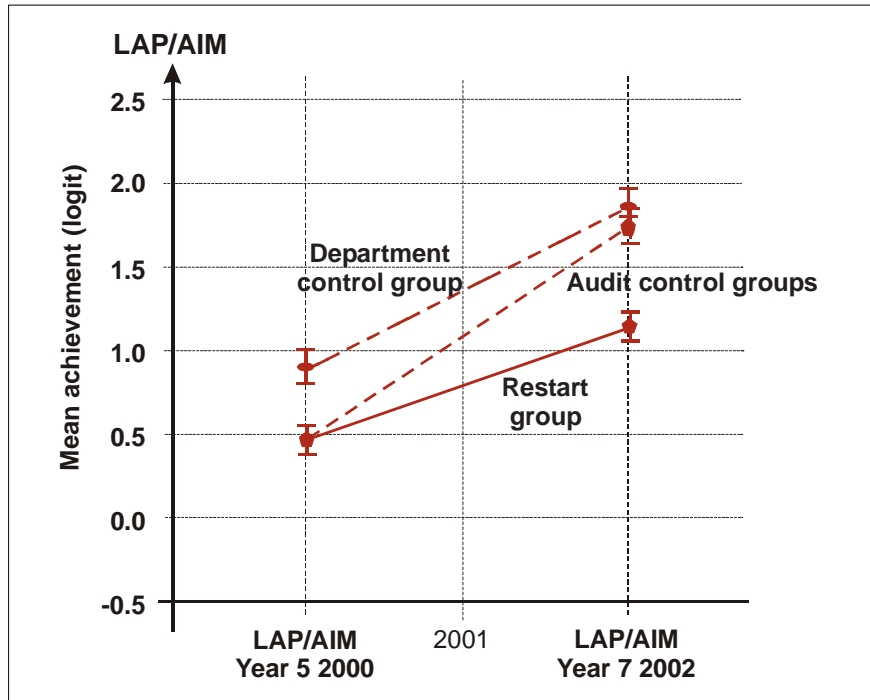


*Legend*: Circles represent mean scores. Error bars indicate the 95 per cent confidence intervals around each mean score. The rate of growth for the 5 "Audit" control groups overlap and, therefore, are shown as one line in the figure.
*Source*: Victorian Auditor-General's Office.

**5.20**    Figure 5C shows that the starting point of the "Department" control group on the AIM scale in Year 5, was higher than that of the Restart group and 5 "Audit" control groups. The Restart group and the 5 "Audit" control groups have the same score on the Year 5 LAP/AIM scale. All groups improved between Years 5 and 7, but at different rates.

**5.21**    The rate of growth (as indicated by the steepness of the line) of the Restart group is lower than that of the 5 "Audit" control groups and less than that of the "Department's" control group. This result is the opposite to that found by the Department and audit using DART data.

**5.22**    The Restart group is a special group of students selected at the beginning of Year 7 based on their poor results on a DART test. Our analysis of the LAP/AIM test results could not make any observation about students' progress in Year 6. Nonetheless, it appears that students in the Restart program were not identified in Year 5 as students who were not going to grow in Year 6 as much as other students in the same Year 5 LAP/AIM score groups. The DART test administered to students at the beginning of Year 7 identified these students. Their results on the LAP/AIM test at the end of the year were not as good as those of other students in the same score groups of the Year 5 LAP/AIM test undertaken 2 years earlier. No information about the "Department" or "Audit" control groups is available between the 2 LAP/AIM tests. Based on the LAP/AIM results, the Restart program could not fully compensate for the relatively slow rate of growth of these students in Year 6. This is likely to be due to unknown factors. It is also unclear whether the Restart students would have improved even less had they not participated in the Restart program.

**5.23**    Monitoring of students "at-risk" following the Year 5 LAP/AIM test would allow for interventions to be targeted to them in Year 6 if required. Further comment on this result is detailed in Part 6 of this report.

**5.24**    Given the anticipated key outcomes of the Restart program, the effectiveness of the program may not be entirely measurable with the assessment instruments examined in this audit (i.e. the DART test and the LAP/AIM test), or within the year of the program's duration. Other key outcomes of the program include greater motivation for, and improved ways of, reading and writing, leading to longer-term effects that extend beyond the duration of the Restart program and across curriculum areas. Measurement of these other outcomes requires both different assessment instruments and evaluation methodologies.

> **RESPONSE** *provided by Secretary, Department of Education and Training, and Chief Executive Officer, Victorian Curriculum and Assessment Authority*
>
> *It is our view that compounding methodological factors meant that the LAP/AIM data were not able to provide sufficient evidence to support the conclusions derived from the DART data.*

# Part 6

# Improving efficiency and effectiveness of literacy improvement programs

# INTRODUCTION

**6.1**     The information presented in Part 3 of this report indicates that, despite the large investment in literacy initiatives over the past 7 years, there has been little average improvement in reading proficiency levels across all students at Years 3, 5 and 7. A small improvement, however, was evident for the lowest performing students at Year 3 in 2002 and at Year 5 between 2000 and 2002.

**6.2**     In Parts 4 and 5 of this report, we presented our findings on the impact of the Department of Education and Training's 3 literacy improvement programs on student reading proficiency levels. The Department's analysis of its aggregated data indicates an improvement in the reading proficiency levels of students who participated in the Early Years Literacy program. Our analysis of the available Reading Recovery data shows an improvement in the reading proficiency of Year 1 students who participated in the program, but it had not brought all of these lower performing students up to the average performance levels of their peers. The Department's and our analysis of available Developmental Assessment Resource for Teachers (DART) data shows greater improvement in the reading proficiency of Year 7 students who participated in the Restart program compared with control group students. However, our additional analyses, using Learning Assessment Program (LAP)/Achievement Improvement Monitor (AIM) data, did not support this finding. We were unable to determine whether the observed improvements in student reading proficiency for these programs have been sustained over time.

**6.3**     In terms of the activities of the Department and the Victorian Curriculum and Assessment Authority, we identified several areas that could be improved, including:

- targeting of funding according to student need;
- student reading proficiency assessment; and
- responsibility for assessment of student reading proficiency.

**6.4**     We consider addressing these aspects, which are discussed in this Part of the report, will contribute to improving the outcomes of the Government's investment in literacy improvement programs.

# TARGETING OF FUNDING ACCORDING TO STUDENT NEED

**6.5**     We consider that resource allocation for literacy improvement programs could be more effective. With the exception of the Restart program, the Department's method of allocating funds to schools does not take into account student need as reflected in their level of literacy proficiency. Further, the Government's literacy improvement initiatives are focused on the first 5 years of schooling. No additional literacy improvement program is available until Year 7. Our additional analyses of the performance of Restart students on LAP/AIM tests, discussed in Part 5 of this report, indicated that these students may have been identified earlier as poor performers.

## Early Years Literacy program

**6.6**      The Early Years Literacy program is a classroom-based preventative program for all Years Prep to 4 students, consisting of a structured 2 hour uninterrupted daily literacy period. The aim of the program is to have all students performing at a high standard by the end of their fifth year of schooling. This preventative approach is expected to minimise the number of students who will require additional assistance in later years.

**6.7**      As previously described in Part 4 of this report, the Department's aggregated data on program participants shows an improvement in overall student reading proficiency between 1998 and 2002. However, for various reasons, it has not been possible to determine whether all students who participated improved, or the extent to which any improvement was due to participation in the program.

**6.8**      It will be important for the Department to better identify the impact of the program on individual students as such information will inform assessments of the program's effectiveness. This includes whether the current method of allocating funding is designed to achieve the greatest effect in raising literacy levels. For example, should funding be provided for all students or weighted according to need, or should the program be supported with an additional intervention for the lower performing students, such as that provided by the Reading Recovery program in Year 1.

## Reading Recovery program

**6.9**      In contrast to the preventative focus of the Early Years Literacy program, Reading Recovery is an intensive one-on-one intervention program aimed at improving the reading and writing proficiency of the lowest achieving students in Year 1.

**6.10**      Funding for the Reading Recovery program is allocated to all schools to enable provision of this program to the lowest performing 20 per cent of their Year 1 students. Each school receives an allocation on the basis of the number of students in Years Prep to 2. No consideration, however, is given to the actual number of students below acceptable reading standards, and who require such intervention. For example, at some schools the percentage of students who require assistance with reading may be 30 per cent and at others it may be 5 per cent. Notwithstanding the needs differential, both schools are funded to support 20 per cent of Year 1 students.

**6.11**      Figure 6A shows that in 2000 and 2001, 60 per cent and 57 per cent, respectively, of Victorian government primary schools allocated additional resources from their School Global Budget to provide Reading Recovery for more than 20 per cent of their students.

**FIGURE 6A**
**PERCENTAGE OF YEAR 1 SCHOOL POPULATION OF STUDENTS**
**PARTICIPATING IN READING RECOVERY** *(a)* **BY**
**THE NUMBER OF SCHOOLS**

2000



2001
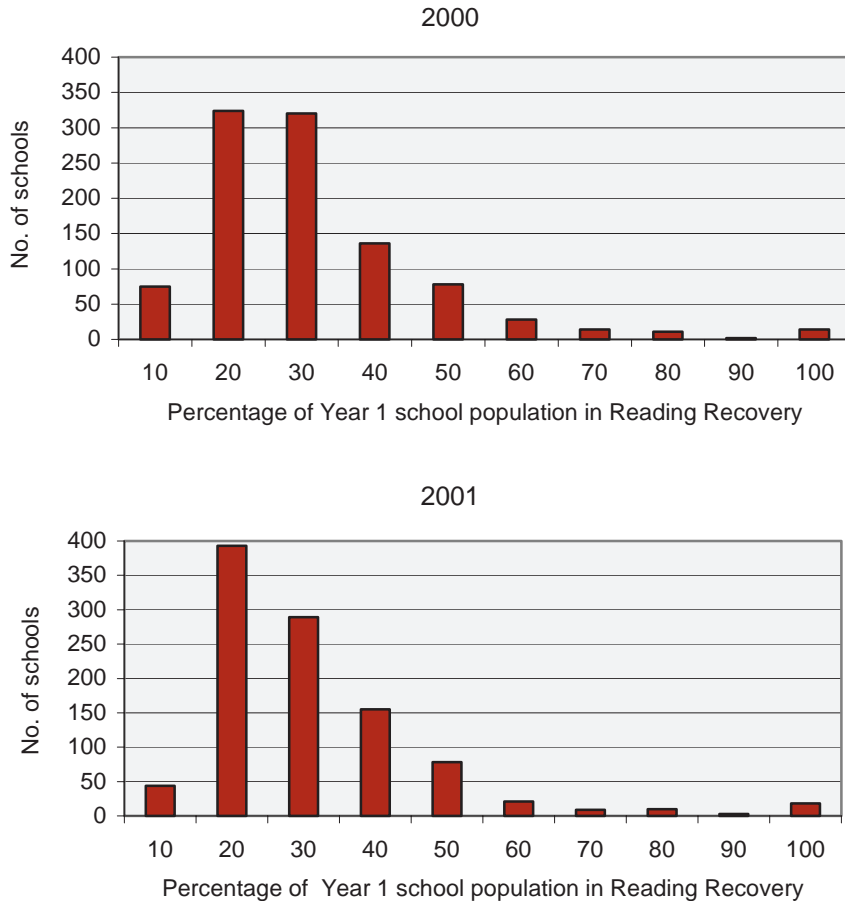


*(a)* Data are presented in 2 histograms. The bar labelled "10" represents the number of schools that had between one and 10 per cent of their Year 1 cohort in Reading Recovery, and the bar labelled "100" represents the number of schools that had between 91 and 100 per cent of their Year 1 cohort in Reading Recovery.

*Source*: Victorian Auditor-General's Office.

**6.12**     The Department advised that there is a strong negative relationship between Reading Recovery participation and school size. That is, smaller schools have a larger proportion of their Year 1 students in the program compared with larger schools. Further, Regional offices provide training in Reading Recovery to as many teachers as wish to participate. As all Reading Recovery teachers are required to work with 4 students in their training year, this may have resulted in increased student participation in the program in schools where trainee teachers are located. This is a particular issue for small schools.

**6.13**     The Department advised that as the conduct of the program is a school responsibility, it was unable to say whether:

- students are receiving the full Reading Recovery program in schools with up to 5 times more participants than have been funded; and

- the criteria for selection of students into the Reading Recovery program are applied uniformly by schools and are identifying those students most "at-risk".

**6.14**   The Department also advised that, in developing the Reading Recovery program, consideration was given to the provision of differential or targeted funding where schools could demonstrate, based on student performance, a greater need for such funding. However, it was decided to adopt a funding model based on per *student funding* for 20 per cent of all Year 1 students with a component for special learning needs.

**6.15**   An evaluation of the implementation of the Reading Recovery program, commissioned by the Department in 2000[1] recommended, "… the Department consider ways to ensure that the funding allocated to each school is adequate to cater for all students who need Reading Recovery. This may include the allocation of additional funding to those schools where students are missing out". However, no action was taken on the recommendation as the Department considered that schools have the flexibility (via the School Global Budget) to adequately cater for all students who require Reading Recovery, and that funding and time allocations remain school-based decisions.

**6.16**   While we acknowledge the self-managing environment in which schools exist, responses from schools we visited highlight the pressure experienced by some schools in adequately catering for all students' reading literacy needs. Nearly all of the primary schools we visited were found to reallocate funds from within their School Global Budget to additional reading literacy initiatives, particularly Reading Recovery.

## Recommendation

**6.17**   We recommend that the Department review the current method of allocating funds for the Early Years Literacy and Reading Recovery programs to ensure that it better reflects the relative learning needs of students and individual school requirements.

> **RESPONSE** *provided by Secretary, Department of Education and Training*
>
> *The Department has acknowledged the need to target funding in a manner that better reflects the learning needs of students and individual school requirements. This approach is demonstrated by the Department's current investigation into an enhanced school resource allocation model, which will include consideration of funding to support the implementation of Early Years Literacy and Reading Recovery. The proposed model will be trialled in 2004 for full implementation in 2005.*

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[1] R Matthews, C Oakley and R Symons, *Implementation of Reading Recovery in Victorian Government Schools, Evaluation Report*, 2000. Undertaken for the Department of Education and Training by the Consultancy and Development Unit, Faculty of Education, Deakin University, 2000.

# STUDENT READING PROFICIENCY ASSESSMENT

**6.18**    The current practices adopted by the Department and the Authority to assess student reading achievement are limited in that they do not facilitate a comprehensive and reliable assessment of the effectiveness of literacy improvement programs and student performance. As discussed in the following paragraphs, such assessments could be improved by:

- ensuring that literacy improvement programs incorporate rigorous evaluation methodologies;
- adopting a longitudinal focus;
- use of compatible assessment scales; and
- better management of student assessment data.

## Program evaluation methodology

**6.19**    The development of literacy improvement programs must incorporate rigorous evaluation methodologies. This would encompass measurement of indirect factors known to impact on student improvement (e.g. teacher quality and normal maturation) and the establishment of comparative groups of non-participating students. Such an approach is critical in reliably determining the amount of improvement in student performance that is due directly to the impact of the program.

**6.20**    As discussed in Parts 4 and 5 of this report, the Department is unable to reliably determine the effectiveness of its Reading Recovery and Restart programs. This is because it only collects data on those students who have been assessed by schools as eligible for the programs, despite requiring schools to assess all Years 1 and 7 students. Had the data for all Years 1 and 7 students been available to audit, any improvement in student literacy proficiency directly attributable to the program could have been measured.

## Longitudinal focus

**6.21**    The Government's rationale for its considerable investment in literacy programs is that improvements in skills, particularly among young children, are likely to lead to better long-term outcomes for individuals across the compulsory years of schooling.

**6.22**    At present, the Department assesses and reports on the immediate or short-term impact of Reading Recovery and Restart on individual student-level outcomes. Reporting of the impact of the Early Years Literacy program on student reading proficiency is based on annually aggregated student data. The Authority limits its system-wide reporting on Years 3, 5 and 7 AIM Statewide testing to single years, although it shows trend data at the school and student level in its school reports.

**6.23** In assessing the relative success of literacy improvement programs, it is important to monitor the growth in students' reading proficiency over their compulsory schooling years and the sustainability or long-term impact of programs. In this context, growth is viewed as an important concept in school education:

> "No concept is more central to the work of teachers than the concept of growth. As educators we use many different terms to describe cognitive, affective and personal growth, including 'learning', 'development', 'progress' and 'improvement'. However we describe it, the concept of individual growth lies at the heart of our work as a profession. It underpins our efforts to assist learners to move from where they are to where they could be: to develop higher levels of reading ability, broader social skills, deeper scientific understandings, more advanced problem solving skills and greater respect for the rights of others[2].

**6.24** At present, the Authority does not monitor the Statewide growth in student literacy proficiency over time, nor does the Department monitor the long-term impact of its literacy improvement programs.

**6.25** The measurement of growth is reliant on individual student-level data (rather than aggregated data) and the capacity to track test results for individual students across different years. This requires that each student is clearly identifiable across his or her schooling years through the consistent assignment of a unique student identifier or some other alternative (e.g. student surname and date of birth). At present, the student reading proficiency data collected by the Department and the Authority are not linked, thereby preventing tracking of student performance across school years.

**6.26** A substantial amount of funding has been provided to schools by the Victorian Government to deliver 3 key literacy improvement programs, particularly since 1999. Given the results of this audit, it will be important for the Authority to develop techniques to monitor student growth in reading proficiency to enable more informed assessments of whether the State's investment has been optimised.

## Compatibility of assessment scales

**6.27** The Authority and the Department use different assessment scales to report student reading proficiency. The LAP/AIM scale used by the Authority differs in a number of ways from the instrument used by the Department to assess reading proficiency of students in the early years of schooling (i.e. Instructional Text Level). The LAP/AIM scale:

- allows a more detailed assessment of student performance at the individual task level;

- provides the capacity to directly compare student responses from different tests in different years; and

- assesses a broader range of student outcomes.

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[2] GN Masters, M Meiers and KJ Rowe. *Understanding and monitoring children's growth*. Educare News, No. 136, May 2003, pp. 52-3.

**6.28**   In the absence of a common measurement scale from early years to Year 10, assessment of student performance is not directly comparable, nor is the measurement of student growth in reading proficiency possible. A common measurement scale could be developed by extending the LAP/AIM scale below Year 3 and above Year 7. Such a scale could provide data that would be useful to teachers and the Department in identifying student needs.

## Management of student assessment data

**6.29**   The provision of accurate and comprehensive information on student performance by the Department and the Authority to the Government and key stakeholders relies on accurate and reliable records of both student results and student details (e.g. name, date of birth).

**6.30**   Our examination of the data obtained from the Department and the Authority revealed inconsistencies in:

- the formatting and coding of student details (e.g. name, gender) across data sets for different Year levels (i.e. Years 1, 3, 5 and 7) as well as across assessment years (i.e. 1996 to 2002);
- electronic spreadsheet database formats (i.e. use of different formatting styles); and
- equating methodologies used across years.

**6.31**   The current use of a different student-level and school-level identification system by the Department and the Authority limits comparisons between the assessment data collected by each. It should be noted that the Authority has responsibility for assessment programs in the Catholic and independent school sectors, as well as government schools. We consider that the Authority is best placed to implement a unique student identifier. However, the adoption of such a system would require the support and co-operation of all sectors.

## Recommendations

**6.32**   We recommend that:

- The Department ensure literacy improvement programs incorporate rigorous evaluation methodologies with which program effectiveness can be reliably assessed;
- The Authority develop techniques to monitor student growth in reading proficiency using existing data collections against a common measurement scale (i.e. Rasch calibrated);
- The Authority, in conjunction with the Department, ensure that assessment scales used to measure student performance are comparable across the early and later years of schooling;
- The Authority ensure that a consistent equating methodology and a common measurement scale are used from Years Prep to 10 to enable valid and reliable comparisons of student reading achievements both within Year levels and across assessment years;

- The Department and Authority develop protocols to ensure the consistent and accurate recording of student identification data through adoption of a common student-level and school-level identification system. These protocols should take into account privacy principles; and

- The Department and Authority adopt consistent data management procedures that are adequately documented in terms of standard operating procedures.

**RESPONSE** *provided by Secretary, Department of Education and Training*

*The Department agrees that sound evaluative frameworks should be part of future literacy improvement programs. The collection of baseline DART data to assess the impact of the Restart program on student outcomes demonstrates the Department's commitment to evaluate future initiatives with a similarly evidence-based approach.*

*The Department recognises the potential value in developing common and comparable assessment instruments to measure student performance across the stages of schooling. The Department and the Authority continue to work toward the development of such tools, particularly in relation to the AIM and the equating of student work to the Curriculum Standards Framework. However, it is important to note that the implementation of such instruments should complement the existing assessment tools in a manner that does not compromise teachers' professional assessments across the curriculum.*

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The Authority presently maps AIM data from Years 3, 5 and 7 on to a common scale, so that it can document growth over this time. It does not conduct assessments in Years Prep to 2, or in Years 8 to 10. The Authority is willing to undertake the necessary empirical work to identify whether existing measures can be mapped on to a common scale.*

*Assessment instruments used in the Early Years serve many purposes, most importantly providing information to teachers that helps them to understand their students' strengths and difficulties, and to plan programs to meet the needs of individual children. It cannot be assumed that formative assessments designed for this purpose will be suitable for use as summative assessments and Rasch-calibrated for system-wide reporting purposes. The Authority is willing to examine the feasibility of doing this, remaining mindful of the need not to compromise the validity of the teacher assessments for their primary use.*

*The Authority currently conducts Statewide tests at Years 3, 5 and 7, and provides both a consistent equating methodology and a common measurement scale. For other years of schooling, the Authority can examine the feasibility of extending the common measurement scale using existing assessment instruments. However this would need to be developed in the context of current Commonwealth-State discussions on Nationally Consistent Curriculum outcomes. The Authority notes that the use of a common measurement scale is not necessary to evaluate the effectiveness of intervention programs.*

*The Authority notes the findings that the Authority is "best placed to implement a unique student identifier … requires the support and co-operation of all sectors" (para. 6.31)*

*The Authority will examine its existing data collection systems to ensure that individual student achievement can be reliably tracked.*

> ***RESPONSE*** *provided by Secretary, Department of Education and Training, and Chief Executive Officer, Victorian Curriculum and Assessment Authority*
>
> *The Department and the Authority recognise the need to develop better methods for tracking student achievement throughout schooling and will examine ways of achieving this.*
>
> *The Department and the Authority welcome this recommendation. This is being addressed through the Department's ICT Strategy and the planned redevelopment of the Authority's Assessment Processing System.*

## RESPONSIBILITY FOR ASSESSMENT OF STUDENT READING PROFICIENCY

**6.33**　　We consider that an overlap in responsibilities between the Authority and the Department is impacting on the efficiency and effectiveness of the current system for assessing student achievements.

**6.34**　　As shown in Figure 2B in Part 2 of this report, the Authority and the Department both have a role in assessing student reading proficiency. Under the *Victorian Curriculum and Assessment Authority Act* 2000, the Authority has a full range of responsibilities covering the assessment of individual students, monitoring system-wide patterns of student achievement and providing related policy advice to the Minister. Specifically, the Authority is responsible for:

- "... developing policies, criteria and standards for assessment in relation to all school students;
- developing, evaluating and approving assessment procedures for accredited courses in Years 11 and 12;
- conducting assessments for school qualifications;
- developing and maintaining standards for measuring and reporting on student performance;
- conducting assessments against such standards;
- monitoring patterns of participation and qualities of outcomes by school students in courses; and
- advising the Minister on any educational policy or strategy relating to the above…".

**6.35**　　The Authority also has responsibility for matters relating to national benchmarking in literacy and numeracy. This responsibility derives from the Statewide assessments undertaken through the Achievement Improvement Monitor (AIM) testing program.

**6.36**　　The Department's role in student assessment forms part of a broader framework of accountability for student, school and system performance and involves:

- the development and review of policies and practices for assessing and reporting student performance to parents and school communities; and
- additional assessment activities as part of a government framework of quality assurance and evaluation of specific departmental programs.

**6.37**    The Department has responsibility for ensuring quality delivery of curriculum in government schools. The Department also undertakes projects to ensure that government school students progress satisfactorily through the levels of the Curriculum and Standards Framework and that students, or groups of students, are given the best possible support to do so. This developmental role is largely in the area of teaching and learning processes.

**6.38**    We consider the current arrangements of shared responsibility for student assessment may not optimise the efficiency and effectiveness of the system for assessing and tracking, over time, the literacy proficiency of students. The dual responsibility has resulted in the collection of independent student assessment data that are not linked, thereby preventing determination of growth in reading proficiency as students move through the compulsory years of schooling.

**6.39**    The Authority is ideally placed to conduct assessment, analysis and report the results and to identify areas where improved standards of achievement are required. The Department is best suited to ensure that literacy initiatives are underpinned by rigorous evaluation methodologies, and develop appropriate strategies to address areas requiring improvement. The Early Years initiative is a prime example of such a strategy.

## Recommendation

**6.40**    We recommend that the Department and Authority review their respective roles for assessment of student literacy proficiency to optimise the efficiency and effectiveness of systems for monitoring and reporting student achievement.

> **RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*
>
> *The Authority notes the finding that it is "ideally placed to conduct assessment, analyse and report the results and identify where improved standards of achievement are required". (para. 6.39)*

> **RESPONSE** *provided by Secretary, Department of Education and Training, and Chief Executive Officer, Victorian Curriculum and Assessment Authority*
>
> *The Department and the Authority support this recommendation and expects that their respective roles and responsibilities will be further clarified as part of the structural review of the Department that is currently underway. The reorganisation presents an opportunity to enhance existing systems for monitoring and reporting on student achievement. In view of its cross-sectoral role, the Authority will also need to engage in dialogue with the Catholic and Independent sectors about the same issues.*

# Part 7

# Reporting and continuous improvement

# INTRODUCTION

*7.1*    Central to the accountability for literacy improvement programs is the establishment of processes to ensure literacy data collected by schools are reported, analysed and used for planning and continuous improvement. This requires:

- an adequate reporting framework to ensure schools, the Department of Education and Training, and the Victorian Curriculum and Assessment Authority are accountable for their role in improving student literacy proficiency; and

- appropriate and adequate mechanisms to ensure student literacy proficiency data is used to identify any aspects of the design and delivery of literacy programs that can be enhanced or need to be improved.

*7.2*    In Part 8 of this report we examine the information systems and processes that support the collection of student reading proficiency data in Victorian government primary and secondary schools, and the processing of this data by the Department and Authority. This Part of the report examines the adequacy of:

- reporting by schools, the Department and the Authority; and

- planning and continuous improvement initiatives undertaken by schools, the Department and the Authority directed at student literacy achievement.

# SCHOOL ACTIVITIES

## Reporting to the Department

*7.3*    In 1994, the Department introduced a framework known as the *Quality Assurance in Victorian Schools: An Accountability Framework*. This occurred in the context of a major change in education policy whereby responsibility and accountability for educational outcomes shifted from centralised control by the Department to self-management by individual schools. The Framework was intended to enhance school accountability to the Government, school community, parents, and the wider community for improved student learning outcomes, as well as overall school performance. The Framework comprises a school charter, annual report and a triennial review to independently examine the school's achievements relative to its goals.

*7.4*    The Department requires that all Victorian government primary and secondary schools submit to it certain literacy achievement data based on teacher assessment, namely:

- aggregated data on reading proficiency for all students and for the Early Years Literacy program (i.e. Assessment of Reading) for Years Prep to 2 students; and

- individual student-level data for the Reading Recovery and Restart programs.

**7.5**     In  2003 all schools that received funding for the Early Years Literacy, Reading Recovery and Restart programs were required to complete a School Compact. This Compact sets out the outcomes and targets schools expect to achieve for each of these programs and the specific measures that will be used to evaluate performance.

**7.6**     We found that all schools we visited had complied with their literacy reporting responsibilities to the Department.

## Reporting to parents

**7.7**     School responsibilities to parents include:

- Providing a minimum of 2 written reports each year on their child's achievements, including teacher assessment of student performance against the Curriculum and Standards Framework for all key learning areas including English (Reading);

- Conducting at least one formal interview each year to discuss their child's progress and further informal discussions as required;

- Progressively developing a learning improvement plan for their child; and

- Providing a report of their child's performance in the AIM Statewide testing program. The AIM test was originally conceived as an independent means of reporting to parents.

**7.8**     Our discussions with school principals and teachers revealed that all schools had a clear understanding of their reporting responsibilities to parents and had provided them with reports of student achievement as assessed by the teacher. Only one secondary school in our sample had failed to provide student AIM reports to parents. This is further discussed in paragraph 7.52.

**7.9**     A number of recent reviews[1,2,3] have reported varying levels of satisfaction among parents with school reporting of student achievement, including literacy. These reviews found that parents want individual student reports that:

- are clear, concise, accurate, timely and useable;

- show how individual students compare with other children in the school, and the Statewide average;

- indicate the strengths of individual students; and

- include strategies for improving student achievements.

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[1] P Cuttance and SA Stokes, *Reporting on Student Achievement, A Research Report* prepared for the Commonwealth Department of Education, Training and Youth Affairs, January 2000.

[2] Department of Education and Training, Victoria. *Public Education, The Next Generation, Report of the Ministerial Working Party*, Melbourne, 2000.

[3] Parents Victoria, *Reporting and Homework in Victorian Government Schools*. Report to Department of Education and Training, Melbourne, September 2000.

**7.10**    We did not directly assess parent satisfaction with the information they receive on their child's literacy achievements, including the AIM report. However, principals and teachers we talked to during our school visits told us that parents varied in their understanding of the value and meaning of their child's AIM results and the testing program itself. Schools considered that parents needed to be provided with more assistance to improve their understanding of student AIM reports and the testing program.

**7.11**    Our discussions with representatives from Parents Victoria[4] revealed that parents' experience of school reporting varied across schools. While individual AIM student reports were valued, parents were critical of the limitations of the nature of the testing (i.e. a one-off test). In general, parents felt that the AIM reports were easier to understand than school-level reports which were based on teacher assessment of student performance against the Curriculum and Standards Framework. Parents recognised that there were often differences between the results in the AIM reports and teacher assessment.

## Reporting to the local community

**7.12**    Schools report to the local community on student learning outcomes and progress towards achievement of their goals and priorities through their school annual report. To assist schools with this responsibility, the Department has developed a template which, among other things, specifies certain information that is to be included in the report.

**7.13**    Our examination of a sample of school annual reports revealed that all had used the template provided by the Department, but the clarity of reporting and amount and quality of interpretation of the performance data varied widely. All reports contained the required information on student achievement, including:

- Assessment of Reading, Years Prep to 2; and
- teacher assessment, English (reading) against the Curriculum and Standards Framework (Years Prep to 10).

**7.14**    Even though schools are not obliged to report any information contained in the comprehensive AIM  report on school performance they receive from the Authority, 12 of the 15 school annual reports that we reviewed had voluntarily disclosed and commented on this data.

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[4] Parents Victoria is the Statewide organisation representing parents' clubs and parents of students in government schools.

**7.15**     Recent research[5] has found that, although the school annual report is a public document, it is difficult to determine whether the document is widely accessible to parents, and in a format easily understood by parents. Representatives from Parents Victoria commented that school annual reports were often not distributed or promoted in school communities, and that parents often did not realise how important it was to have access to the report. Parents often informed Parents Victoria that they had to read the annual report at the school upon request.

**7.16**     Given the school annual report is a key medium for reporting student literacy achievements to the school community, it is important that it is accessible and that it provides a comprehensive picture of the school's progress in improving students' proficiency. The non-disclosure of the school's aggregated AIM testing results in its annual report detracts from providing a more complete picture of school performance.

## Continuous improvement

**7.17**     To assist schools in undertaking continuous improvement activities, the Department provides them with:

- benchmark data ("like" schools and Statewide performance) to help them assess their relative performance; and
- guidelines in the annual report and school triennial review templates to assist in the analysis and interpretation of their student performance data.

**7.18**     For literacy programs, the Department initially required schools to prepare:

- *An Early Years Literacy Plan*. These 3-year Plans are designed to facilitate the continuous improvement process and commit schools to work towards achieving the Statewide minimum standards for reading for students in their first 2 years of schooling; and
- *A Middle Years Reform Program Action Plan*. These 3-year Plans identify strategies for improving the learning outcomes of students in their middle years of schooling. This Plan also incorporates specific targets for individual students participating in the Restart program and the strategies to monitor their progress towards the achievement of those targets. (From 2003, these 2 plans are incorporated into school compacts).

**7.19**     During our school visits we found that schools were focused on meeting the formal accountability requirements of the Department, but the extent to which they used student performance data for continuous improvement varied. Further, while the Department does provide assistance to schools to identify problem areas and corrective action, this is undertaken at 3-year intervals, via the triennial review process.

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[5] P Cuttance and SA Stokes, *Reporting on Student Achievement, A Research Report,* Prepared for the Commonwealth Department of Education, Training and Youth Affairs, January 2000.

**7.20**    Student achievement data from the literacy improvement programs and the AIM Statewide testing program were used by schools that we visited in a number of ways, including:

- monitoring school and student progress and assessing improvement in performance over time;

- comparing performance with that of groups of similar schools and the average Statewide performance;

- identifying principal and teacher professional development needs and informing teaching practice; and

- assisting with planning activities (e.g. improving targeting of students needing additional assistance, developing individual learning plans for students identified as "at-risk" and informing lesson planning).

**7.21**    Our discussions with principals and teachers at the schools we visited identified that more use would be made of student performance data for planning and continuous improvement activities if certain issues were addressed, namely:

- delays by the Department and the Authority in providing the analysis of student performance data to schools, which limits its usefulness for planning purposes (10 out of 30 schools);

- the time and resources used by schools to meet the data collection and reporting requirements of the literacy improvement programs which detracts from the effort that could be directed towards continuous improvement (10 out of 30 schools); and

- the perception by some schools that the "one-off" nature of the AIM test limits its value (8 out of 30 schools).

**7.22**    Our discussions with representatives from Parents Victoria revealed that parents were very keen to see data on student achievement used for continuous improvement purposes in schools rather than to make comparisons between schools. Parents specifically want to know from any form of reporting how their child's performance compares with that of other groups of students, what their child's strengths and weaknesses are and how best they can assist their child.

**7.23**    Given the time and effort applied by schools to collect student data from the literacy improvement programs and to participate in the AIM testing program, variable use of this data by schools is of concern.

## Recommendations

**7.24**    We recommend that schools:

- give more attention to helping parents better understand the relationship between AIM test results and teacher assessments of student reading proficiency in order to improve reporting to parents;

- ensure that maximum use is made of student literacy proficiency data for planning and continuous improvement; and

- focus on monitoring the growth in student reading proficiency over time and use this information for identifying students "at-risk" and targeting programs to improve their performance.

**RESPONSE** *provided by Secretary, Department of Education and Training*

*While existing reporting frameworks are designed to meet the specific needs of students in each school, the Department agrees that reports to parents could be enhanced to communicate better the relationship between AIM results and teacher assessments of student progress. The Department and the Authority will work together to identify an improved reporting framework that meets the local needs of all schools.*

*Effective use of literacy proficiency data is embedded within the accountability and planning framework of all Victorian government schools. For each of the Early Years Literacy, Literacy Intervention (Reading Recovery), and Restart initiatives, all schools in receipt of such targeted funding are required to set targets through their school compact, based on their current level of performance and with a clear focus on improvement. The school compact also requires that each school adopt key improvement strategies, again based on their current performance that will lead directly to the achievement of those targets.*

*The Department welcomes the recommendation that student reading proficiency be monitored over time and used to identify students "at-risk". This recommendation reflects current practice at both the school, regional and Statewide level, with literacy data being used to target programs and funding toward those students most "at-risk". The Reading Recovery program, which directs funding to the bottom 20 per cent of students in each school, is the most longstanding example of this. Restart and Access to Excellence funding has been provided to schools with the greatest demonstrated need.*

## ACTIVITIES OF THE DEPARTMENT

*7.25*     The Department is responsible for reporting on Statewide and other comparative student literacy proficiency levels to schools and the general community, including parents.

### Reporting to schools

*7.26*     Schools provide student performance data from the 3 literacy improvement programs to the Department which it collates and analyses. The results of the analyses are then reported back to schools, as shown Figure 7A.

**FIGURE 7A**
**DEPARTMENTAL REPORTING TO SCHOOLS ON LITERACY IMPROVEMENT PROGRAMS**

| Literacy improvement program | Comments |
|---|---|
| Early Years Literacy Program (Assessment of Reading) | Schools are provided with their own aggregated data, "like" school and State benchmarks. Schools are able to access their own school report as well as trend data from the departmental website. |
| Reading Recovery | Schools are provided with aggregated regional data via the Department's regional offices and Reading Recovery tutors. They can also access the Statewide report via the regional offices. |
| Restart | Schools are provided with individual student performance data. The Statewide report is accessible on the departmental website and provided in hard copy to every Restart school. |

*Source*: Department of Education and Training.

**7.27**     We noted that only the school reports for the Assessment of Reading results provided by the Department were supported with guidance on interpreting the data. None of the reports provided advice on strategies for improving the performance of those students who are not achieving the required literacy standards.

**7.28**     Figure 7A shows that there is inconsistency in the format of student literacy reports given to schools by the Department. While information provided on student performance in the Early Years Literacy (Assessment of Reading) and Restart programs is standardised across schools, the format of feedback to schools on Reading Recovery varies across regions. This impacts on the usefulness of this data.

**7.29**     Our discussions with principals and teachers at the schools we visited revealed that both were generally satisfied with the student performance data received from the Department. However, some commented that more timely provision of student performance data by the Department would better assist them in  planning  their  literacy improvement programs. In 2002, for example, schools submitted the required Restart data by mid-December, but did not receive a school report until late February 2003, and the Statewide report until April 2003.

## Reporting to parents and the community

**7.30**     The Department reports annually to Parliament and the community on student performance through its annual report. We examined the Department's annual report for 2001-02 and found that the information on student literacy performance was incomplete. While trends in reading levels for students in Years Prep to 2 between 1998 and 2001 were reported, there was no aggregated information on student reading proficiency levels as assessed through the AIM Statewide testing program. We noted that while the annual report included the 2001 target for the percentage of Years 3 and 5 students meeting national benchmarks in reading, the achievement levels were not available due to delays in processing by the Ministerial Council on Education, Employment, Training and Youth Affairs. National benchmarks in reading for Year 7 students have not yet been developed.

## *Performance measures*

**7.31**     The Department reports in *Budget Paper No. 3*, 2001-02 on a range of performance measures relating to student literacy achievements. All these measures were disclosed in the Department's annual report.

**7.32**     Details of the Department's performance measures are presented in Figure 7B.

**FIGURE 7B**
**DEPARTMENTAL LITERACY PERFORMANCE MEASURES**

| |
| --- |
| *Primary Education (Years Prep-6) – major outputs/deliverables* |
| **Quantity** |
| • Per cent of Year 1 cohort accessing one-to-one literacy intervention programs such as Reading Recovery |
| **Quality** |
| • Year 3 students reaching national benchmarks in reading *(a)* |
| • Year 3 indigenous students reaching national benchmarks in reading *(a)* |
| • Year 5 indigenous students reaching national benchmarks in reading *(a)* |
| • Student attainment in text level 1 at the end of Prep in reading *(b)* |
| • Students in non-metropolitan regions achieving satisfactory standards in Prep reading assessments *(b)* |
| • Student attainment at text level 5 at the end of Year 1 in reading *(c)* |
| *Junior Secondary Education (Years 7-10) – major outputs/deliverables* |
| **Quality** |
| • Year 7 students reaching State standards in English: reading (sample) |

*(a)* Change due to a move from a weighted scale score to unit weighted score as a means of calculating the measure.
*(b)* Students deemed as capable of reading unseen text with 90 per cent accuracy at text level 1.
*(c)* Students deemed as capable of reading unseen text with 90 per cent accuracy at text level 5.
*Source*: *Budget Paper No.3*, 2001-02.

**7.33**     As a suite of measures, they are generally adequate. However, the performance measures published in the Budget Papers are highly aggregated. To enhance departmental accountability, these performance measures could be supplemented with additional information including:

- longitudinal information on growth in student reading proficiency;
- the performance of student sub-groups; and
- the performance of more target groups considered to be at greater risk of failing to meet benchmarks than most students (e.g. boys, rural and remote students, and students with a language background other than English).

**7.34**     This additional information would also allow better assessment of the effectiveness of literacy improvement programs.

## Other sources of literacy information

**7.35**    The Department provides additional information to parents and the community on literacy via electronically available publications and an information service. These include:

- *Education times* – a newspaper which links the Department with the education sector;
- *Parent Link* – a website and magazine for parents which provides information on Victorian government schools;
- the Department's website – containing extensive information on programs and resources;
- Education line – a telephone and email service which provides information for parents and the community; and
- the Victorian Education Channel - which allows the public to access departmental policies and publications.

**7.36**    We examined the *Education Times*, *Parent Link* magazine and the Victorian Education Channel and found that the information provided on literacy programs and publications was comprehensive, clear and easily accessible. The Department's annual report for 2001-02 discloses increased usage during 2001 of the telephone and email information services provided through the Education Line (10 per cent and 65 per cent, respectively, which includes literacy information requests).

**7.37**    The Department's website for parents, *Parent Link*, provides extensive information about the Government's literacy improvement programs, as well as the AIM and the Curriculum and Standards Framework, via a link to the Authority's website. *Parent Link* does not, however, provide any links to information on Statewide student performance, specifically, Curriculum and Standards Framework benchmarks, Assessment of Reading benchmarks or Reading Recovery targets.

**7.38**    Our discussions with the Department revealed that, to date, there has been no formal evaluation of parent and community satisfaction with the information on student performance publicly available from the Department.

## Continuous improvement

**7.39**    In line with the Government's goals and targets for education, one of the key priorities for the Department is ensuring continued improvement in literacy standards in Victorian primary and secondary schools. To achieve this aim it is important that the Department:

- continually reviews and evaluates student performance standards and the impact of literacy improvement programs; and
- provides adequate and timely feedback on student performance to those responsible for the development and delivery of literacy improvement programs.

**7.40**    Our examination of the Department's continuous improvement activities identified that student performance information, including literacy, is periodically disseminated to the Department's regional offices and school-based literacy program staff. The information is aimed at assisting schools to improve student outcomes by, for example:

- monitoring achievements of students identified as needing additional assistance, including those from an Aboriginal and Torres Strait Islander background and those from language backgrounds other than English; and

- providing more focused intervention programs or setting more appropriate school-based targets.

**7.41**    However, the Department's approach to continuous improvement for literacy programs needs to be enhanced. For example, although regional and central office staff who participate in the Reading Recovery program meet quarterly to discuss aspects of the Program's operation, there is no documented process for linking the outcomes of these meetings to program improvement. This contrasts with a structured program evaluation process.

**7.42**    The literacy achievement data collated and analysed by the Department on literacy improvement programs provides a wealth of information to inform the design of literacy programs by the Department and their delivery by schools. However, it was not evident to us that this data has been used as effectively as it might be. The additional analysis we undertook using the LAP/AIM test data of students who participated in the Restart program (detailed in Part 5 of this report) is an example of such use.

**7.43**    The Reading Recovery program provides a further example. The data shown in Part 4 of this report indicate that Reading Recovery is provided to up to 100 per cent of students in any one school (notably small schools) and the average is 40 to 50 per cent, well above the intended 20 per cent. This raises a number of questions for the program such as:

- Is 20 per cent an inappropriate proportion of students who should be accessing Reading Recovery? Schools would appear to believe this is the case;

- If schools put an average of 40 to 50 per cent of students through the Reading Recovery program, is the unit price for which they are funded too high or are they diverting funds from other programs which may or may not be lower priority?; and

- If schools are providing Reading Recovery for a lower unit price, is their provision meeting appropriate standards?

**7.44**    Further comment on these issues is detailed in Part 6 of this report.

## Recommendations

**7.45**    We recommend that the Department:

- provide analyses of student reading proficiency data to schools in time to be used in their annual planning cycle, along with guidance on strategies that could be used to improve student reading proficiency;

- include additional information in its annual report that shows a measure of student growth across years in reading and the performance of student sub-groups and those target groups "at-risk" of not meeting expected performance levels;

- review and determine parent and community satisfaction with its disclosure of student literacy proficiency in its annual report and other public information sources; and

- use existing student assessment data collected from literacy improvement programs and the AIM Statewide tests to inform effective targeting of improvement programs to students whose performance is not satisfactory.

*RESPONSE provided by Secretary, Department of Education and Training*

*Analyses of Assessment of Reading Years Prep to 2 data, Restart data and Reading Recovery data are provided to schools as soon as possible following the assessment of students and the transmission of these data from schools. All reports are provided to schools in time for school annual reporting requirements to be met. Significant training has been provided to school leadership teams and teachers specifically relating to interpretation of Assessment of Reading reports, Reading Recovery data and AIM data. Schools are also provided with specific advice on strategies to improve student reading proficiency.*

*The Department annually releases benchmark publications that report the longitudinal gains in reading proficiency made by students. These publications identify sub-groups of students (by gender, socio-economic groupings, indigenous background, language background and mobility) and report the reading proficiency of each group against expected performance standards. These publications are available on the Department's website and augment the information currently provided in the Department's annual report.*

*Each school currently evaluates and reports annually on parent and community satisfaction. Such information is included in the annual benchmark publications.*

*The Department recognises the need to utilise data to effectively target resources and improvement programs to those students in greatest need. At the school level, this is reflected by the selection of students for participation in the Reading Recovery program, where Assessment of Reading data and other recommended assessment tools are used to identify students and target resources. At a system-wide level, literacy programs in the middle years of schooling, such as Access to Excellence and Restart, used data effectively to target funding to schools where students have the greatest need.*

## ACTIVITIES OF THE AUTHORITY

### Reporting responsibilities

**7.46**     The Victorian Curriculum and Assessment Authority's 2002-04 Strategic Plan indicates that one of its key result areas is public reporting. Specifically, the Authority is committed to "… providing accurate information to the Government and to the community on the performance of Victorian students in relation to Government targets and international best practice on curriculum and assessment".

**7.47** Accordingly, the Authority provides a wide range of reports to various stakeholders (e.g. State and Commonwealth Education Ministers, Cabinet, Department of Education and Training, all government schools, Catholic education sector and parents). The reports produced by the Authority cover a range of data emanating from the AIM Statewide testing program. A report is also prepared on student achievement against national benchmark standards in literacy.

**7.48** We noted that improved reporting arrangements for parents were introduced in 2003. These include:

- Mandated AIM testing for all Year 7 students. Reports from these tests will give parents and schools additional information on student performance and help identify students who need assistance; and

- More comprehensive information to parents through reporting on individual students' literacy performance against both Victorian and national benchmarks at Years 3 and 5.

## AIM Statewide testing program

**7.49** During our visits to schools we examined a sample of AIM school reports and individual student reports. We found the school reports were comprehensive, containing data for both 2002 and trend data for the previous 5 years. The report was supported by a reporting guide which provided detailed information on how to produce various reports and how to interpret and use them. Schools are able to use the data reports to review performances of individual students, groups of students (e.g. by year, class, or gender), as well as compare whole school performance with other similar schools and Statewide data.



*The Victorian Curriculum and Assessment Authority provides each school with an AIM reporting guide as well as individual student reports and school results on a CD-Rom.*

**7.50**     While principals and teachers at the schools we visited were generally satisfied with the reports provided by the Authority, some considered aspects of the reporting process could be improved. These included:

- more timely delivery of AIM reports by the Authority to better assist schools in their planning of resource allocations (6 out of 30 schools); and

- the provision of additional support for school principals and teachers to improve their understanding and interpretation of AIM data (4 out of 30 schools).

**7.51**     We recognise that there is a tension between the annual school planning cycles, which operate on a calendar year basis, and system-wide reporting which is on a financial year basis. Currently, AIM tests are conducted in August and reported back to schools in October-November. This testing cycle is aligned with that of all other States for the purposes of national benchmarking.

**7.52**     The Authority does not monitor whether schools distribute student AIM reports. It should be noted that the Authority enters into a contract with all independent schools and the Catholic Education Office to administer the AIM test and ensure that principals subsequently distribute the student AIM reports to parents. There is no such mechanism available to the Authority for government schools.

**7.53**     We consider the school reports currently produced by the Authority are comprehensive and adequately satisfy its literacy reporting responsibilities. Addressing the concerns expressed by some schools, as outlined above, should ensure that optimal use is made of the AIM data by schools to inform teaching and learning strategies.

## *Evaluation of AIM testing program*

**7.54**     One of the core responsibilities of the Authority is the development and delivery of the AIM testing program. It is the major tool for assessing student literacy achievement and progress across the State. Given the significance of this program, it is important that the Authority undertake ongoing evaluation of the AIM data to ensure the testing program is functioning as intended and achieving its objectives.

**7.55**     For this purpose, the Authority:

- monitors design suitability of the AIM tests;

- reviews item statistics from trials and final test results to improve the development of future test items; and

- reviews the congruence between student achievement, as measured by AIM tests and teacher assessment against the Curriculum and Standards Framework, to assess the adequacy of the Framework.

**7.56**     Through these activities, we are satisfied that the Authority has adequate processes in place to ensure the AIM testing program is continuing to function as intended. It is important that the Authority communicates this information to schools and parents.

## Continuous improvement

**7.57**     Our discussions with the Authority revealed that the results of AIM testing are used for continuous improvement in a number of ways, including provision of an annual professional development program for principals and teachers. This program is aimed at improving their understanding of the AIM testing results and facilitating increased use of this data at the school level (e.g. assessing the effectiveness of school programs and identifying individual students' strengths and weaknesses).

**7.58**     At the time of this audit, the Authority was developing an initiative aimed at monitoring school use of AIM data in local decision-making. Consultation has already occurred with a small number of primary and secondary schools, and a survey and school visits are proposed to be undertaken during the AIM testing period in August 2003.

**7.59**     It will be important for the Authority to evaluate the results of this initiative and give consideration to enhancing school use of AIM data.

## Recommendations

**7.60**     We recommend that the Authority:

- determine and address any barriers to the use of AIM test results by schools for planning and continuous improvement purposes, including timely provision of AIM school reports and the need for additional support for teachers and principals; and

- require all schools to retain evidence of their compliance with the prescribed procedures for distributing AIM reports to parents.

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The timeliness of AIM reporting has improved dramatically in the 2 years that AIM has been conducted by the Authority, with 2003 AIM school reports scheduled for delivery to schools early in Term 4. Additional support for teachers and principals has already been provided in the form of brochures and bulletin articles. Extensive professional development will be provided for teachers to guide them in making use of their school AIM data, as it has in previous years (90 sessions were provided in 2002).*

*The Authority will implement the recommendation that schools be required to formally substantiate their compliance with the prescribed procedures for distributing AIM reports to parents, and will monitor the evidence provided.*

# Part 8

# Reliability and management of literacy data

# INTRODUCTION

**8.1**     In conducting our audit, we relied upon student reading proficiency data collected by schools and processed by the Department of Education and Training and the Victorian Curriculum and Assessment Authority. Given the importance and use made of this data, processes should be in place to ensure that it is complete and accurate. This would require schools, the Department and the Authority to have in place:

- clear and up-to-date policy manuals and guidelines which have been endorsed by management;
- processes for assessing compliance with these policies and procedures;
- training for staff to ensure they are knowledgeable in the use of these policies and procedures; and
- appropriate internal control systems, including computer hardware and software controls.

**8.2**     This Part of the report examines the adequacy of processes and information technology systems:

- adopted by Victorian government primary and secondary schools for collecting student literacy proficiency data and submitting that data to the Department and the Authority; and
- established by the Department and Authority to process and analyse the student data.

## COLLECTION OF DATA BY SCHOOLS

### Early Years Literacy program, Reading Recovery and Restart

**8.3**     Victorian government primary and secondary schools use a combination of manual and computerised systems for collecting and submitting information to the Department on the reading proficiency of students who participate in the literacy improvement programs. After assessing each student, literacy improvement program staff record the results manually. For the Early Years Literacy program, this also involves preparation of a summary of student results (Assessment of Reading) in each of the Years Prep to 2. These aggregated results, and the assessment results for individual students from Reading Recovery and Restart, are then submitted electronically to the Department's central database.

**8.4**     To assist schools in meeting the data collection requirements, the Department provides:

- guidelines which specify the method of assessment and the data collection process and requirements;

- an online data collection system (except for the Restart program which is provided by email) designed to reduce the incidence of data errors and to allow the Department to collect accurate data on student reading proficiency for analysis and reporting;

- support from regional program staff as well as departmental information technology staff;

- a professional development program for program staff; and

- additional supportive material and resources to assist in teaching literacy.

**8.5**    From our discussions with school personnel, examination of documentation and verification of departmental student records against those held by schools, we found that:

- all schools had a clear understanding of, and demonstrated high levels of compliance with, the Department's assessment and data collection requirements;

- there were very few errors in the data submitted to the Department by schools; and

- all schools expressed high levels of satisfaction with the support made available to them by the Department.

**8.6**    However, we also noted that while two-thirds of schools had some processes in place to validate the accuracy and completeness of data before submitting it to the Department, the extent to which schools undertook these processes varied. This weakness was compounded by the absence of any departmental guidelines covering internal checking of these processes. For example, in 5 primary schools one staff member was responsible for both assessing students and summarising and entering that data (Assessment of Reading) into the Department's system. While we recognise that it is more difficult to fully segregate these responsibilities in small schools because of limited flexibility of resources, this may lead to data errors not being detected.

**8.7**    A further weakness we identified was inconsistency of record retention. Some schools retained records of student results extending over several years, while other schools had disposed of their records after submitting them to the Department. The Public Records Office Disposal Schedule for School Records states that student data collected for either the purpose of State and National standardised testing (as is the Assessment of Reading data), or internal school-based testing, can be destroyed after administrative use is completed. The decision regarding the timing of disposal of student data is made by schools when they consider the records are no longer required. Some schools were unsure of the period of time that Reading Recovery and Restart student testing records should be retained.

**8.8**    Aside from these weaknesses, we were satisfied that the processes supporting collection and submission by schools of complete and accurate student literacy proficiency data were adequate.

# AIM testing data

*8.9*      For the AIM Statewide testing program, the Authority provides schools with test booklets containing the questions to be answered by students. Schools are responsible for administering the test and returning the completed test booklets by secure courier to the Authority. The completeness and accuracy of the test data is then validated by the Authority.
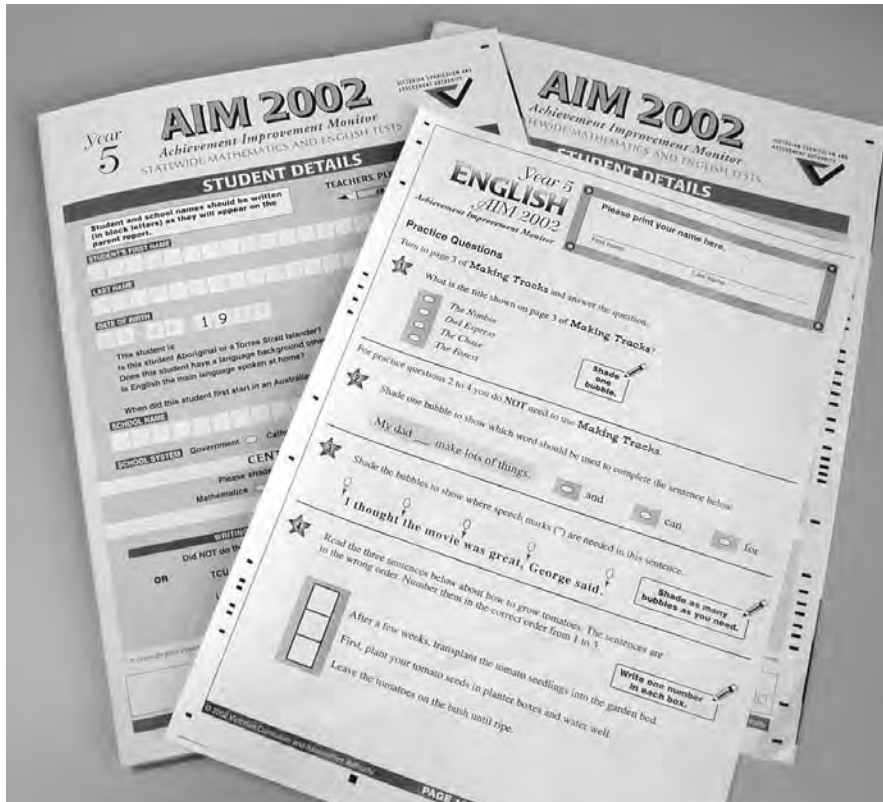


*The 2002 Year 5 English AIM test booklet.*

*8.10*      The Authority supports schools in conducting the AIM test by providing:

- a comprehensive manual for principals and teachers which provides information on the administrative procedures associated with the testing program and guidelines on the conduct of assessment tasks;

- a telephone service to answer queries about the testing program; and

- detailed information about the testing program on its website.

*8.11*      During our school visits we found that staff were satisfied with the support made available to them by the Authority to complete the administrative tasks associated with AIM testing. We noted, however, that schools are not required to keep any records to evidence that they have complied with the Authority's AIM administrative and security requirements, nor does the Authority routinely check the extent of school compliance.

## Recommendations

**8.12**    We recommend that:

- the Department develop and annually monitor compliance, in a sample of schools, with standardised procedures aimed at ensuring the completeness and accuracy of literacy data collections;

- the Department provide clear guidelines to schools regarding the retention of individual Reading Recovery and Restart student records; and

- the Authority requires schools to retain evidence of their compliance with the prescribed AIM administrative and security  arrangements, and check this at a small sample of schools each year.

**RESPONSE** *provided by Secretary, Department of Education and Training*

*The Department recognises the need to ensure the completeness and accuracy of literacy data collections and provides schools with online guidelines on procedures for each of the data sets requested. The Department will explore the feasibility of developing mechanisms to monitor compliance with these procedures.*

*The Department acknowledges the need to provide clear guidelines to schools regarding the retention of student records. The Department contends that clear guidelines are provided to schools in The Victorian Government Schools Reference Guide (section 6.29).*

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The Authority will implement the recommendation that schools be required to formally substantiate their compliance with AIM administrative requirements, and will monitor the evidence provided.*

## PROCESSING AND ANALYSIS OF DATA BY THE DEPARTMENT

**8.13**     The Department analyses the student reading proficiency data received from individual schools in order to:

- assess the progress of all schools towards achieving the Government's goals and targets for literacy; and

- provide information back to schools on the aggregated results of their students compared with those of other schools and the average level of student proficiency across the State.

**8.14**     Critical to this analysis is the existence of sound information technology systems and documented processes to guide staff in processing the student reading proficiency data.

## Information technology systems

**8.15**    Figure 8A shows the flow of literacy proficiency data, relating to students who participate in the literacy improvement programs, that is input by schools to information technology systems operated by the Department.

**FIGURE 8A**
**OVERVIEW OF COLLECTION, PROCESSING**
**AND ANALYSIS OF LITERACY DATA BY THE DEPARTMENT**
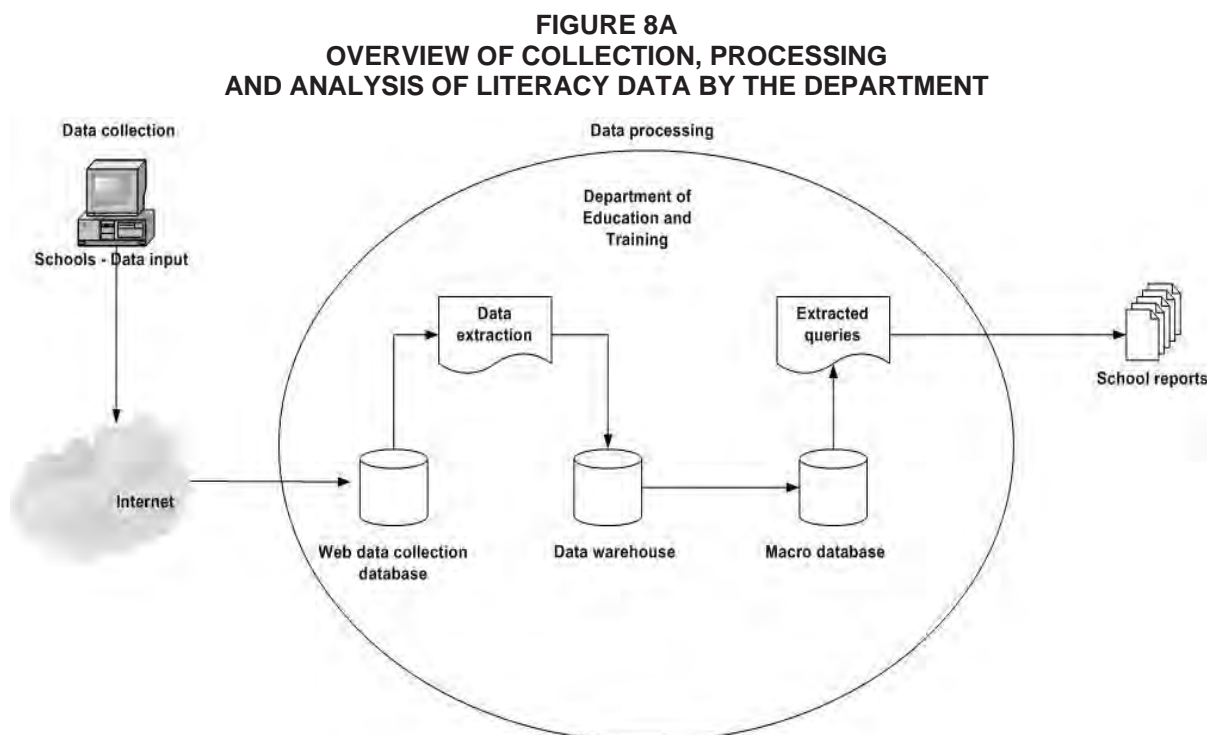


*Source*: Victorian Auditor-General's Office.

**8.16**    Our examination of the information technology control environment of the Department's applications (Assessment of Reading [Early Years Literacy program] and Reading Recovery) identified some minor control weaknesses. For example:

- Passwords to authenticate users accessing the Assessment of Reading and Reading Recovery applications were not changed on a regular basis. This increases the risk that the password becomes known to unauthorised users;

- Applications that generate Assessment of Reading reports were not supported by adequate technical documentation relating to system functions and macros[1] and the database construction;

- There was inconsistent use of control totals when Assessment of Reading data is transferred through a series of end-user applications. This creates a risk that data that is corrupted, modified or not completely transferred will not be identified, impacting on the completeness and accuracy of the data; and

- The capacity exists for the application security and edit controls to be bypassed by directly accessing the Assessment of Reading database. This creates a risk that unauthorised changes could be made to the data without being detected.

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[1] Macros are programs that perform various functions on a data set.

**8.17**    Due to the weaknesses outlined above, we undertook detailed testing to gain assurance the Assessment of Reading data produced by the Department in its 2002 report was complete and accurate. We subsequently found that the Department's report was incomplete in that only 17 schools had failed to submit their data to the Department by the required cut-off date. This omission however, did not materially impact on the reliability of the data, as these schools accounted for only approximately one per cent of the entire student database.

## Procedural guidelines

**8.18**    Based on our discussions with departmental personnel, we identified that:

- there are no written guidelines for the data cleaning and validation procedures (i.e. standard operating procedures) undertaken by departmental staff for the Assessment of Reading or Restart data, nor are the respective responsibilities of staff clearly defined;

- there are no written guidelines for the data validation procedures undertaken by departmental staff for the Reading Recovery data; and

- staff training programs in data validation processes have not been developed.

**8.19**    The Department's data validation processes are generally complex. While the use of a small number of experienced staff increases reliability of processing, the absence of formally documented procedures is a risk, particularly if these people unexpectedly leave the organisation. Without proper guidance, potential exists for non-completion of critical processes, duplication of effort, or even the conduct of unnecessary tasks, and ultimately the generation of unreliable data.

## Recommendations

**8.20**    We recommend that the Department:

- address weaknesses within its information technology control environment, including security and edit controls, and supporting technical documentation;

- reinforce with schools the importance of submitting their Assessment of Reading data within the required time frame;

- introduce processes for validating final student literacy reports against the submitted school data during the data cleaning processes;

- document data cleaning and validation processes, and key staff responsibilities, for the analysis of Assessment of Reading and Restart data, and periodically review the ongoing adequacy of these processes; and

- document the data validation processes and key staff responsibilities for the analysis of Reading Recovery data.

*RESPONSE provided by Secretary, Department of Education and Training*

*The Department believes that its information technology control environment adequately support its delivery of data collection tools to schools for literacy programs. The Department's Security Policy sets clear expectations for the protection of passwords and their periodic change. The Department believes that the level of awareness of this Policy minimises the risk of passwords becoming known to unauthorised users. The Department recognises that its current database connectivity practices represent a potential security control issue and has proposed the use of "Connection Objects" to better facilitate secure user connections with its databases. The Department will continue to ensure that existing and future applications are accompanied by further technical documentation.*

*The Department agrees that it should continue to advise schools of the importance of submitting all data within required time frames and to conduct school follow-up processes to ensure compliance. In 2002, 99 per cent of schools submitted Assessment of Reading data within the required time frame.*

*The Department recognises the need for rigorous data validation processes. Detailed processes designed to validate school report data against raw school data are already in place for Reading Recovery data and similar processes for Assessment of Reading and Restart are being developed. The Department will, therefore, strengthen its validation processes for Assessment of Reading and Restart data sets accordingly.*

*It is agreed that further procedural documentation is required to minimise the risk associated with staff succession and the potential impact on Restart and Assessment of Reading data.*

*Key staff responsibility and data validation processes associated with the Reading Recovery data set will be better documented and periodically reviewed in accordance with the recommendation.*

# PROCESSING AND ANALYSIS OF DATA BY THE AUTHORITY

**8.21**     Student literacy proficiency data derived from the AIM Statewide testing program is used by the Authority to inform the Government and the community on student performance. This data is also used in the development of national benchmarks. Given the importance of the testing program, it is vital that the integrity of the testing process and the test data remains high. This extends to having adequate security controls and quality assurance procedures in place during the packaging, delivery and administration of the test, and during processing and analysis of the test results.

**8.22**     Between 1995 and 2001, the Authority engaged a number of contractors to undertake printing and delivery of LAP/AIM test booklets, and processing, analysis and reporting of student test results. Our examination of the performance of these contractors revealed that:

- In 1995, errors were made in the analysis of Years 3 and 5 student test results which were not detected by the Authority until after the results had been issued to schools. This necessitated re-analysis of the data, resulting in the late issue of student reports;

- In 1996, errors were made during the packaging of test booklets. This resulted in some test results initially being delivered to the wrong schools; and

- In 2001, errors were made in the analysis of Years 3 and 5 school-level and State data which were not detected by the Authority until after these results were sent to schools. This necessitated re-analysis of the data, resulting in the late issue of school-level reports.

*8.23*    We found these problems were caused because the Authority did not:

- adequately manage the contractors (e.g. ensure timely delivery of services, receive effective and regular communication and reporting of progress, and ensure appropriate quality assurance and risk management practices were in place); and

- ensure that its in-house staff had the necessary educational measurement expertise to assess the reliability and accuracy of data processing and analysis undertaken by the contractor.

*8.24*    Security breaches of LAP/AIM test papers also occurred in 1996 and 1998, resulting in unauthorised access to test papers. Both incidents were reported in the media. In 1996, a test paper was taken from the printing centre and sent to a primary school student. This breach resulted in termination of the contract with the printer. In 1998, a journalist gained unauthorised possession of a number of LAP/AIM test papers. No subsequent action was taken by the Authority to address this security breach since the source of the leak could not be identified. We note, however, that breach of test security is now included in the Authority's risk register.

*8.25*    Since 2002, the Authority has assumed responsibility for the work previously undertaken by contractors. While the testing program was completed on time in 2002, it was accomplished under difficult circumstances in that:

- due to the contractor's inability to complete the required tasks, the Authority terminated its agreement with the contractor even though it was not properly prepared to assume this task;

- the Authority did not receive any documentation from the contractor on the procedures involved in processing the AIM data;

- the software supporting the databases used for processing the AIM data was unreliable;

- the Authority had insufficient staff with the educational measurement expertise necessary for this exercise; and

- the Authority's information systems were ageing and required modification to enable processing of the AIM data.

*8.26*    Subsequent to completing the 2002 testing program, the Authority has identified a number of areas needing improvement. At the time of this audit, the Authority had completed, or was in the process of undertaking, a number of initiatives covering:

- information technology systems and databases (e.g. external review of information technology systems and existing databases);

- project and contract management (e.g. restructure of contract management functions within the Authority and appointment of a contract manager);

- educational measurement expertise (e.g. appointment of additional staff with appropriate measurement expertise);

- quality assurance procedures (e.g. documentation of procedural and data validation processes); and

- risk management (e.g. review of the Authority's risk register, in particular, the new risks associated with AIM in-house operations).

*8.27*    We consider that the Authority did not always adequately supervise its contractors between 1995 and 2001. Given that AIM testing is one of the Authority's core responsibilities, it will need to ensure that the proposed improvement initiatives are completed in a timely manner and periodically reviewed. The Authority would also benefit from developing a comprehensive AIM operations manual to guide staff on the various processes involved with conducting the testing program and to clearly define their respective responsibilities.

## Information technology systems

*8.28*    Figure 8B shows the flow of student proficiency data submitted by schools to the information technology systems operated by the Authority in 2002 when it assumed responsibility for AIM operations.

**FIGURE 8B**
**OVERVIEW OF LAP/AIM TESTING, PROCESSING**
**AND ANALYSIS OF DATA BY THE AUTHORITY**
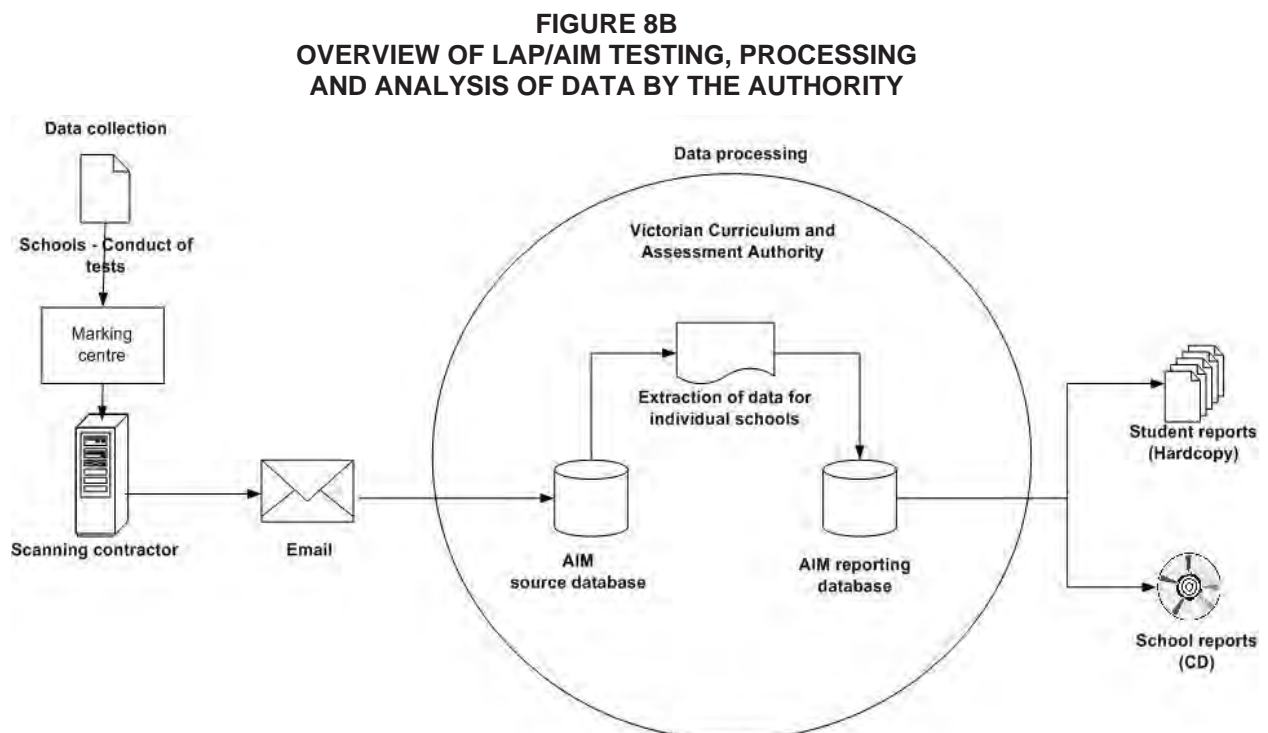


*Source*: Victorian Auditor-General's Office.

**8.29**    Our examination of the information technology control environment of the Authority's applications (VCAA[2] Administrative Software System, Achievement Improvement Monitor and Assessment Processing System) identified some minor control weaknesses. For example:

- In 2002, the AIM data was sent (emailed) to the Authority via an unencrypted zipped file that was not password protected. This creates a risk because the data could be intercepted, modified or read by unauthorised persons;

- Data security policies that stipulate minimum levels of access and required monitoring in respect of the AIM data were not in place. This creates a risk of unauthorised changes being made to data without being detected;

- The AIM source database does not have adequate in-built security controls. This creates a risk of unauthorised changes being made without detection; and

- The application used to manage the AIM data does not log any changes made to either the application structure or data. This creates a risk that inappropriate or unauthorised changes could be made to the database without being detected, which could impact on the integrity of that data. We note that the Authority was implementing measures to address this weakness at the time of the audit.

**8.30**    We also verified a sample of 2002 school AIM reports, which involved checking the information against the source data to gain an assurance over the completeness and accuracy of data processing. The results of this testing proved satisfactory.

## Recommendations

**8.31**    We recommend that the Authority:

- ensure implementation of the AIM improvement initiatives are completed in a timely manner and periodically review the effectiveness of these initiatives;

- develop a comprehensive AIM operations manual and periodically review compliance with, and ongoing adequacy of, these guidelines; and

- address the control weaknesses within its information technology control environment.

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[2] Victorian Curriculum and Assessment Authority.

**RESPONSE** *provided by Chief Executive Officer, Victorian Curriculum and Assessment Authority*

*The Authority has taken steps towards achieving these recommendations.*

*AIM was administered in-house for the first time in 2002, and at the completion of the 2002 testing cycle, the Authority conducted a review of procedures. The 2002 internal review has led to improvements in quality assurance and risk management procedures for 2003. The Auditor-General correctly notes the scope of the review - including IT systems, project and contract management. The Authority notes the findings on the management of external contractors and the problems experienced in 1995, 1996 and 2001. These problems were addressed by the Authority assuming full responsibility for the administration of AIM from the beginning of 2002.*

*The Authority conducted a review of procedures at the completion of the 2002 testing cycle. The decision was taken to develop a comprehensive operations manual, the documentation of which is currently underway.*

*The Authority welcomes the recommendations on file encryption and in 2003 ensured security by having the data personally delivered to the Authority on compact disk.*

# Appendix A

# Conduct of the audit

## AUDIT OBJECTIVES AND SCOPE

The objective of the audit was to assess the efficiency and effectiveness of reading literacy improvement programs in Victorian government schools, including whether:

- the progress of students that participated in literacy improvement programs is greater than their progress had they not participated and is sustained over time;

- the current methods of resource allocation for literacy improvement programs are appropriate; and

- literacy proficiency data collected at the end of Year Prep, and at Years 3, 5 and 7 was complete and accurate, and appropriately used for decision-making and reporting.

The audit focused on the major literacy improvement programs initiated by the Department of Education and Training (Early Years Literacy, Reading Recovery and Restart*)* and covered the progress of students in Victorian government schools from Years Prep to 7. The audit also included in its scope the Victorian Curriculum and Assessment Authority and a sample of government primary (20) and secondary (10) schools. Primary and secondary schools were randomly selected across both metropolitan and rural regions. Secondary schools were selected from the subset of 101 secondary schools in which the Restart program was operating.

The audit did not include an assessment of the content of literacy curriculum, teaching strategies used in the various literacy improvement programs, teacher assessments of students, or the assessment instruments used to test student proficiency.

## AUDIT METHODOLOGY

The audit methodology comprised:

- Analysis of data on students' literacy performance using the results of reading literacy proficiency tests and teacher assessments (e.g. Learning Assessment Program/ [LAP]/Achievement Improvement Monitor [AIM] and Instructional Text Level [ITL]). This was undertaken by analysing progress in literacy proficiency of individual students from Year 1 to Years 3 and 5, and from Year 3 to Years 5 and 7 between 1996 and 2002. The analysis covered a number of student cohorts and student sub-groups including gender, English Speaking Background (ESB), Language Background Other Than English (LBOTE) and Aboriginal and Torres Strait Islander (ATSI) background. The relationship between student reading literacy achievement and the school Special Learning Needs (SLN) index was also examined;

- Examination of practices adopted by schools in recording student assessment data and submitting that data to the Department for the Early Years Literacy, Reading Recovery, and Restart programs. This included assessing compliance with the Authority's requirements relating to the administration of LAP/AIM tests;

- Examination of information systems operated by the Department and Authority for processing literacy data;

- Examination of departmental policy and procedure documentation relating to the allocation of literacy funding to schools;

- Examination of internal and external reporting practices of both the agencies and schools. This included examining the use made of literacy data for continuous improvement purposes; and

- Discussions with the Victorian Primary Principal's Association, Victorian Association of State Secondary Principals and Parents Victoria Incorporated.

## PERIOD COVERED BY THE AUDIT

The audit examined reading literacy data collected by the Department and Authority between 1996 and 2002. Practices adopted by schools in recording student literacy assessment data and information systems operated by the Department and Authority were examined at April 2003.

## COMPLIANCE WITH AUDITING STANDARDS

The audit was performed in accordance with Australian Auditing Standards applicable to performance audits and, accordingly, included such tests and other procedures considered necessary in the circumstances.

## ASSISTANCE TO THE AUDIT TEAM

Specialist assistance was provided by:

- Australian Council for Educational Research, represented by Dr Ken Rowe and Mr Andrew Stephanou, which undertook the comprehensive analysis of student assessment data;

- Educational Evaluators Australia, which undertook visits to 25 of the 30 schools covered in the audit; and

- Mr Graeme Jane, Director, Laulon Pty Ltd, who assisted in planning the audit and provided specialist advice.

I wish to express my appreciation for the support and assistance provided to my officers and specialists by the management and staff of the Department of Education and Training, Victorian Curriculum and Assessment Authority and the 30 primary and secondary schools covered in the audit, as listed in Figure A1.

**FIGURE A1**
**PRIMARY AND SECONDARY SCHOOLS COVERED IN THE AUDIT**

| | Schools | |
|---|---|---|
| *Region* | *Primary* | *Secondary* |
| Eastern Metropolitan | The Basin Primary School | |
| Northern Metropolitan | Sunbury West Primary School | Preston Girls Secondary College |
| | Reservoir West Primary School | |
| Southern Metropolitan | Beaconsfield Upper Primary School | Noble Park Secondary College |
| | James Cook Primary School | Western Port Secondary College |
| | Parktone Primary School | |
| Western Metropolitan | Avondale Primary School | Deer Park Secondary College |
| | Strathmore Primary School | |
| | Williamstown Primary School | |
| Barwon South Western | Macarthur Primary School | Flinders Peak Secondary College |
| Central Highlands Wimmera | Balliang East Primary School | |
| | Buninyong Primary School | |
| | Maroona Primary School | |
| Gippsland | Moe (Albert Street) Primary School | Traralgon Secondary College |
| | Nicholson Primary School | |
| Goulburn North Eastern | Benalla West Primary School | Ovens College |
| | Currawa Primary School | |
| | Milawa Primary School | |
| Loddon Campaspe Mallee | Eaglehawk Primary School | Merbein Secondary College |
| | Merbein South Primary School | Weerona College |
| | | Wedderburn College |

*Source*: Victorian Auditor-General's Office.

Boroondara Park Primary School, Templestowe Park Primary School, Altona Secondary College and Reservoir District Secondary College allowed the Office to pilot the school survey instrument and data collection tools. Their contribution to the conduct of the audit is gratefully acknowledged.

# Appendix B

# Available student literacy data

**YEAR 1 READING RECOVERY COHORTS**

| Assessment years | 1996(a) | 1997(a) | 1998(a) | 1999 | 2000 | 2001 | 2002(b) |
|---|---|---|---|---|---|---|---|
| Females (ESB, Non-ATSI) | n.a. | n.a. | n.a. | 213 | 2 916 | 2 953 | n.a. |
| Females (LBOTE, Non-ATSI) | n.a. | n.a. | n.a. | 52 | 538 | 495 | n.a. |
| Females (ATSI) | n.a. | n.a. | n.a. | 5 | 50 | 56 | n.a. |
| Males (ESB, Non-ATSI) | n.a. | n.a. | n.a. | 368 | 4 876 | 4 743 | n.a. |
| Males (LBOTE, Non-ATSI) | n.a. | n.a. | n.a. | 67 | 754 | 711 | n.a. |
| Males (ATSI) | n.a. | n.a. | n.a | 5 | 66 | 79 | n.a. |
| **Totals** | | | | **710** | **9 200** | **9 037** | |

**YEAR 3 LAP/AIM READING COHORTS**

| Assessment years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| Females (ESB, Non-ATSI) | 14 237 | 15 005 | 15 320 | 16 693 | 16 510 | 16 567 | 15 986 |
| Females (LBOTE, Non-ATSI) | 2 133 | 2 357 | 2210 | 2 365 | 2 291 | 3 020 | 3 549 |
| Females (ATSI) | 93 | 168 | 152 | 214 | 190 | 195 | 182 |
| Males (ESB, Non-ATSI) | 14 837 | 15 713 | 16 206 | 17 582 | 17 565 | 17 107 | 16 859 |
| Males (LBOTE, Non-ATSI) | 2 393 | 2 508 | 2 411 | 2 561 | 2 474 | 2 952 | 3 828 |
| Males (ATSI) | 90 | 168 | 151 | 151 | 177 | 213 | 234 |
| **Totals** | **33 783** | **35 919** | **36 450** | **39 566** | **39 207** | **40 054** | **40 638** |

**YEAR 5 LAP/AIM READING COHORTS**

| Assessment years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| Females (ESB, Non-ATSI) | 13 821 | 14 371 | 15 322 | 15 703 | 15 816 | 15 980 | 15 393 |
| Females (LBOTE, Non-ATSI) | 2 211 | 2 295 | 2 271 | 2 548 | 2 198 | 3 010 | 3 506 |
| Females (ATSI) | 104 | 115 | 132 | 168 | 196 | 218 | 233 |
| Males (ESB, Non-ATSI) | 14 597 | 15 210 | 15 722 | 16 498 | 16 594 | 16 721 | 16 216 |
| Males (LBOTE, Non-ATSI) | 2 440 | 2 501 | 2 669 | 2 738 | 2 392 | 3 244 | 3 762 |
| Males (ATSI) | 119 | 129 | 132 | 172 | 172 | 204 | 235 |
| **Totals** | **33 292** | **34 621** | **36 248** | **37 827** | **37 368** | **39 377** | **39 345** |

**YEAR 7 LAP/AIM READING COHORTS**

| Assessment years | 1996(c) | 1997(c) | 1998(c) | 1999(c) | 2000(c) | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| Females (ESB, Non-ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 6 912 | 8 905 |
| Females (LBOTE, Non-ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 1 293 | 2 356 |
| Females (ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 157 | 164 |
| Males (ESB, Non-ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 7 304 | 9 407 |
| Males (LBOTE, Non-ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 1 522 | 2 649 |
| Males (ATSI) | n.a. | n.a. | n.a. | n.a. | n.a. | 163 | 159 |
| **Totals** | | | | | | **17 351** | **23 640** |

*(a)* Data not available at individual student-level.
*(b)* Data not available at the time of the audit.
*(c)* Year 7 testing not introduced until 2001.
*Legend*: ESB is English Speaking Background, LBOTE is Language Background Other Than English, ATSI is Aboriginal and Torres Strait Islander.
*Source*: Victorian Auditor-General's Office.

# Appendix C

# Achievement differences between students and schools

**FIGURE C1**
**RELATIONSHIPS BETWEEN YEAR 3 STUDENTS' LAP/AIM**
**READING ACHIEVEMENT SCORES AND THEIR SCHOOL'S,**
**SLN INDEX 1996-2002 CORRELATIONS AND COEFFICENTS**
**OF DETERMINATION**

| Year | N | r | $r^2$ |
|------|------|------|------|
| 1996 | 33 771 | -0.23 | 0.05 |
| 1997 | 35 109 | -0.22 | 0.05 |
| 1998 | 36 450 | -0.24 | 0.06 |
| 1999 | 36 426 | -0.23 | 0.05 |
| 2000 | 39 207 | -0.24 | 0.06 |
| 2001 | 40 038 | -0.23 | 0.05 |
| 2002 | 40 606 | -0.02 | 0.00 |
| **Mean** | **37 372** | **-0.20** | **0.05** |

*Legend*: N is the number of students; r is the correlation coefficient,
$r^2$ is the coefficient of determination.
*Source*: Victorian Auditor-General's Office.


**FIGURE C2**
**EFFECT SIZES (SD UNITS) OF FITTED VARIABLES AND PER CENT OF**
**EXPLAINED AND RESIDUAL VARIANCE IN YEAR 3 STUDENTS'**
**LAP/AIM READING ACHIEVEMENT SCORES**

| Effect/statistic | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|------|------|------|------|------|------|------|------|
| Gender (females) | +.206 | +.230 | +.001*(a)* | +.254 | +.273 | +.211 | +.181 |
| LBOTE | -.168 | -.205 | -.167 | -.200 | -.157 | -.110 | -.070 |
| ATSI | -.545 | -.552 | -.485 | -.450 | -.527 | -.503 | -.379 |
| SLN index | -.191 | -.196 | -.208 | -.193 | -.224 | -.261 | -.228 |
| Explained variance (%) | 6.3 | 6.9 | 5.9 | 7.2 | 4.4 | 7.1 | 6.9 |
| School-level residual variance (%) | 8.5 | 8.4 | 8.4 | 8.6 | 7.0 | 7.3 | 6.9 |
| Student-level residual variance (%) | 85.3 | 84.7 | 85.7 | 84.2 | 88.6 | 85.6 | 86.2 |
| **N (schools)** | **1 203** | **1 254** | **1 272** | **1 269** | **1 263** | **1 258** | **1 267** |
| **N (students)** | **33 771** | **35 109** | **36 450** | **39 426** | **39 207** | **40 038** | **40 606** |

*(a)* Not significant at the $p < 0.05$ $\alpha$ level.
*Legend*: N is the number of students, LBOTE is Language Background Other Than English, ATSI is Aboriginal and Torres Strait Islander, SLN is Special Learning Needs index.
*Source*: Victorian Auditor-General's Office.

**FIGURE C3**
**RELATIONSHIPS BETWEEN YEAR 5 STUDENTS' LAP/AIM**
**READING ACHIEVEMENT SCORES AND THEIR SCHOOL'S SLN INDEX,**
**1996-2002 CORRELATIONS AND COEFFICENTS OF DETERMINATION**

| Year | N | r | $r^2$ |
|------|------|------|------|
| 1996 | 33 269 | -0.24 | 0.06 |
| 1997 | 34 480 | -0.25 | 0.06 |
| 1998 | 36 200 | -0.27 | 0.07 |
| 1999 | 37 716 | -0.25 | 0.06 |
| 2000 | 37 340 | -0.26 | 0.07 |
| 2001 | 39 379 | -0.27 | 0.07 |
| 2002 | 39 313 | -0.25 | 0.06 |
| **Mean** | **36 814** | **-0.26** | **0.06** |

*Legend*: N is the number of students, r is the correlation coefficient, $r^2$ is the coefficient of determination.
*Source*: Victorian Auditor-General's Office.

**FIGURE C4**
**EFFECT SIZES (SD UNITS) OF FITTED VARIABLES AND  PER CENT OF**
**EXPLAINED AND RESIDUAL VARIANCE IN YEAR 5 STUDENTS'**
**LAP/AIM READING ACHIEVEMENT SCORES**

| Effect/statistic | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|------------------|------|------|------|------|------|------|------|
| Gender (females) | +.288 | +.262 | +.266 | +.194 | +.200 | +.231 | +.227 |
| LBOTE | -.170 | -.164 | -.216 | -.186 | -.153 | -.184 | -.170 |
| ATSI | -.625 | -.551 | -.551 | -.620 | -.597 | -.468 | -.442 |
| SLN index | -.214 | -.228 | -.239 | -.223 | -.244 | -.252 | -.213 |
| Explained variance (%) | 8.3 | 8.5 | 9.6 | 7.7 | 9.0 | 9.6 | 7.9 |
| School-level residual variance (%) | 6.2 | 5.2 | 6.3 | 6.5 | 6.8 | 6.4 | 6.1 |
| Student-level residual variance (%) | 85.5 | 86.3 | 84.1 | 85.8 | 84.2 | 84.0 | 86.0 |
| **N (schools)** | **1 190** | **1 250** | **1 260** | **1 261** | **1 265** | **1 260** | **1 263** |
| **N (students)** | **33 269** | **34 398** | **36 176** | **37 716** | **37 340** | **39 379** | **39 313** |

*Legend*: N is the number of students, LBOTE is Language Background Other Than English, ATSI is Aboriginal and Torres Strait Islander, SLN is Special Learning Needs index.
*Source*: Victorian Auditor-General's Office.

**FIGURE C5**
**RELATIONSHIPS BETWEEN YEAR 7 STUDENTS' LAP/AIM**
**READING ACHIEVEMENT SCORES AND THEIR**
**SCHOOL'S SLN INDEX, 2001-2002 CORRELATIONS AND**
**COEFFICENTS OF DETERMINATION**

| Year | N | r | $r^2$ |
|------|------|--------|------|
| 2001 | 17 303 | - 0.21 | 0.04 |
| 2002 | 24 102 | - 0.19 | 0.04 |
| **Mean** | **20 703** | **- 0.20** | **0.04** |

*Legend*: N is the number of students, r is the correlation coefficient,
$r^2$ is the coefficient of determination.
*Source*: Victorian Auditor-General's Office.

**FIGURE C6**
**EFFECT SIZES (SD UNITS) OF FITTED VARIABLES AND**
**PER CENT OF EXPLAINED AND RESIDUAL VARIANCE IN YEAR 7**
**STUDENTS' LAP/AIM READING ACHIEVEMENT SCORES**

| Effect/statistic | 2001 | 2002 |
|------|------|------|
| Gender (females) | +.254 | +.322 |
| LBOTE | -.212 | -.220 |
| ATSI | -.605 | -.619 |
| SLN index | -.200 | -.214 |
| Explained variance (%) | 8.3 | 10.2 |
| School-level residual variance (%) | 5.7 | 5.2 |
| Student-level residual variance (%) | 86.0 | 84.6 |
| **N (schools)** | **142** | **218** |
| **N (students)** | **17 290** | **23 588** |

*Legend*: N is the number of students, LBOTE is Language Background Other Than English, ATSI is Aboriginal and Torres Strait Islander, SLN is Special Learning Needs index.
*Source*: Victorian Auditor-General's Office.

**FIGURE C7**
**RELATIONSHIPS BETWEEN READING RECOVERY YEAR 1**
**STUDENTS' INSTRUCTIONAL TEXT LEVEL SCORES AND**
**SCHOOL SLN INDEX, 1999-2002 CORRELATIONS AND**
**COEFFICENTS OF DETERMINATION**

| Year | N | r | $r^2$ |
|------|------|--------|------|
| 1999 | 670 | - 0.16 | 0.03 |
| 2001 | 8 496 | - 0.18 | 0.03 |
| 2002 | 7 401 | - 0.18 | 0.03 |
| **Mean** | **5 522** | **- 0.17** | **0.03** |

*Legend*: N is the number of students, r is the correlation coefficient,
$r^2$ is the coefficient of determination.
*Source*: Victorian Auditor-General's Office.

**FIGURE C8**
**EFFECT SIZES (SD UNITS) OF FITTED VARIABLES AND**
**PER CENT OF EXPLAINED AND RESIDUAL VARIANCE IN**
**LAP/AIM READING ACHIEVEMENT SCORES FOR TWO FORMER**
**READING RECOVERY STUDENT COHORTS IN YEAR 3**

| Effect/statistic | 2001 | 2002 |
|------|------|------|
| Gender (females) | +.135 | +.106 |
| LBOTE | +.231 | +.051 |
| ATSI | +.154 | -.193 |
| SLN index | -.220 | -.174 |
| Explained variance (%) | 4.3 | 3.4 |
| School-level residual variance (%) | 3.6 | 17.4 |
| Student-level residual variance (%) | 92.1 | 79.2 |
| **N (schools)** | **191** | **925** |
| **N (students)** | **301** | **4 265** |

*Legend*: N is the number of students, LBOTE is Language Background
Other Than English, ATSI is Aboriginal and Torres Strait Islander, SLN is
Special Learning Needs index.
*Source*: Victorian Auditor-General's Office.

# PERFORMANCE AUDIT REPORTS
## of the Auditor-General
## issued since 2000

| Report title | Date issued |
|---|---|
| Represented persons: Under State Trustees' administration | May 2000 |
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| Non-metropolitan urban water authorities: Enhancing performance and accountability | November 2000 |
| Services for people with an intellectual disability | November 2000 |
| Grants to non-government organisations: Improving accountability | November 2000 |
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| Teaching equipment in the Technical and Further Education sector | May 2001 |
| Managing Victoria's growing salinity problem | June 2001 |
| Post-acute care planning *(a)* | June 2001 |
| Management of major injury claims by the Transport Accident Commission | October 2001 |
| Teacher work force planning | November 2001 |
| Management of injury claims by the Victorian WorkCover Authority | November 2001 |
| Departmental performance management and reporting | November 2001 |
| International students in Victorian universities | April 2002 |
| Nurse work force planning | May 2002 |
| Investment attraction and facilitation in Victoria | May 2002 |
| Management of roads to local government | June 2002 |
| Managing Victoria's air quality | June 2002 |
| Mental health services for people in crisis | October 2002 |
| Management of food safety in Victoria | October 2002 |
| Community dental health services | October 2002 |
| Managing risk across the public sector | March 2003 |
| Drug education in government schools | March 2003 |
| Managing medical equipment in public hospitals | March 2003 |
| Performance management and reporting: Progress report and a case study | April 2003 |
| Fire prevention and preparedness | May 2003 |
| Electronic procurement in the Victorian government | June 2003 |

*(a)* This report is included in Part 3.2, Human Services section of the *Report on Ministerial Portfolios,* June 2001.

The Victorian Auditor-General's Office website at **www.audit.vic.gov.au** contains a more comprehensive list of all reports issued by the Office. The full text of the reports issued over the past 10 years is available at the website. The website also features a "search this site" facility which enables users to quickly identify issues of interest which have been commented on by the Auditor-General.

# AUDITOR GENERAL
# VICTORIA