DO NUMBERS COUNT?

Educational and Financial Impacts of School Enrolment
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## DO NUMBERS COUNT?



Educational and Financial Impacts of School Enrolment

Report No 7 - August 1998


AUDITOR GENERAL

Western Australia


## AUDITOR GENERAL

## Western Australia

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THE SPEAKER
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THE PRESIDENT

## LEGISLATIVE COUNCIL

## PERFORMANCE EXAMINATION - DO NUMBERS COUNT? - Educational and Financial Impacts of School Enrolment

This Report has been prepared consequent to examinations conducted under section 80 of the Financial Administration and Audit Act 1985 for submission to Parliament under the provisions of section 95 of the Act.

Performance examinations are an integral part of my overall Performance Auditing Program and seek to provide Parliament with assessments of the effectiveness and efficiency of public sector programs and activities, thereby identifying opportunities for improved performance.

The information provided through this approach will, I am sure, assist Parliament in better evaluating agency performance and enhance Parliamentary decision making to the benefit of all Western Australians.


D D R PEARSON
AUDITOR GENERAL
August 19, 1998

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## Executive Summary

In 1998, over 16000 teachers and 6000 school based non-teaching staff were employed in the government school system to deliver education to over 250000 students at about 770 schools. The projected cost of government school education in 1998-99 is $\$ 1.3$ billion.

The number of students in government schools varies significantly, with primary schools ranging from nine to over 900 students and secondary schools from 150 to almost 1900 students.

School size is thought to impact on both the efficiency of education delivery and the educational opportunities available to students. A certain `critical mass' is considered necessary to enable an adequate range of educational opportunities to be provided. This, together with the higher cost per student of operating smaller schools, has led to considerable pressure to restructure schools.

Since the early 1990s, the Education Department of Western Australia (Department) has implemented a number of restructuring strategies. However, this has not just been a Western Australian phenomenon. Most Australian states during the 1990s have undertaken school restructuring with enrolment as a key factor. In Victoria, a review of 900 sites led to 250 closures.

School restructuring can involve resource sharing, joint use of facilities, amalgamations or closure of schools. Of these, school closures are by far the most contentious, evoking widespread public debate about the relative costs, benefits and necessity.

In September 1997, the Department launched its Local Area Education Planning (LAEP) policy which it hopes will deliver better educational opportunities for students more efficiently. LAEP is a district level planning process involving groups of schools in close proximity working together to develop local area education plans. These plans identify options to provide students with access to better curriculum choices, specialist programs and facilities through the improved use of current and future educational resources.

Unlike the previous School Rationalisation strategy, LAEP emphasises educational opportunities for students. LAEP is also different in that sole decision making responsibility for restructuring rests with the Government and Department, though community consultation is a requirement.

In June 1998, the first outcomes of LAEP were made known. These included the closure of one metropolitan primary and four metropolitan secondary schools and conversion of four others to middle schools. As well, four new secondary schools would be built.

This report describes the findings of an examination into the effect that enrolment can have on educational opportunities and operating costs and of the issues, outcomes, and expectations of recent school restructuring strategies.

## Overall Findings and Conclusions

The main findings and conclusions from system level and case study analysis are:
68000 thousand students attend low enrolment schools... Approximately 27 per cent of students (68000) attend one of 182 low enrolment primary or 68 low enrolment secondary schools ${ }^{1}$.

A smaller number of students attend what might be considered large schools. Approximately 22 per cent of students (55000) attend one of 62 large primary schools or 13 large secondary schools ${ }^{2}$.
... that are more expensive per student... Low enrolment schools are generally more expensive to operate on a per capita (per student) basis. Per student costs at low enrolment schools compared to high enrolment schools were up to $\$ 10000$ per student more in primary schools and $\$ 4750$ in secondary schools resulting in inequitable distribution of limited education resources. The higher costs in low enrolment schools are mostly caused by lower student to teacher and student to non-teaching staff ratios.

[^0]... and generally make less use of facilities... Average classroom occupancy rates in low enrolment schools tend to be low resulting in scarce resources being applied to unused or underutilsed facilities. Amongst the schools examined classroom occupancy rates in the low enrolment schools were sometimes less than half that of the larger schools. At a systems level about a quarter of all primary schools and secondary schools have 21 per cent or more surplus capacity.
... yet offer fewer educational opportunities... Students in low enrolment primary schools are often disadvantaged by less access to specialist programs and teachers, frequent multi-age grouping of classes and limited socialisation and peer competition. Secondary students are affected by markedly reduced curriculum offerings that can impact on their further education or career aspirations. Reducing the educational disadvantage within low enrolment schools would be costly. For instance, to provide an acceptable curriculum offering to Year 11 students at one of the schools examined would cost \$200 000 per year.
... though generally offer better pastoral care... Lower student to teacher and student to non-teaching staff ratios means that low enrolment schools can generally offer better pastoral care. For instance, amongst the case study primary schools, the student-teacher ratios at the lowest enrolment schools was nine while at the largest school the ratio was 23 . Many parents commented that the level of pastoral care found in smaller schools was particularly beneficial for primary aged students. Initiatives to improve pastoral care in some higher enrolment secondary schools have been introduced, though this has been costly.

What has been happening... . Between 1994 and 1996 the Department's School Rationalisation strategy resulted in 11 closures and 16 amalgamations. Savings totalled \$28.5 million of which local school communities received $\$ 21.1$ million. The remaining savings of $\$ 7.4$ million were redistributed across the entire system.

The Department's current restructuring strategy, LAEP is well advanced within the metropolitan and major regional centres and on target to be completed within the planned timeframe of 2000.

The first changes arising from LAEP affect 13 existing schools, including five closures and will require about 2400 students to move to another school.

Current indications are that LAEP will result in further significant restructuring to that announced in June 1998. Scope for school closures remains though indications are that this option is unlikely to be much used.

The concepts underpinning LAEP are a step forward from the School Rationalisation strategy. Nevertheless, a number of concerns were identified which if not resolved could adversely affect the eventual outcome. These include:

- a need for greater rigour in identifying and weighing up the costs and benefits of various restructuring options;
- cost of re-routing existing bus routes not taken into account in the restructuring plans;
- inequity in the distribution of funds to local areas from the closure and sale of school properties. School districts in areas of high property values will benefit more from the closure and sale of school lands than those in areas of low values. The Government has recognised this and has taken some action to reduce this effect;
- outdated and/or inaccurate school profile information provided to District Offices for planning purposes; and
- parental concern and some scepticism about the capacity of LAEP to offer significant benefits.


## Summary of Recommendations

- The Department should continue to pursue options to minimise structurally based educational and financial inequities.
- The Department and Government should review those aspects of LAEP identified in this report as being a concern and in particular, the need for more detailed cost-benefit analysis of restructuring options.


## Introduction

Responsibility for the provision of primary and secondary school education in Western Australia resides with the State Government.

Currently the Education Department of Western Australia's (Department) annual budget is one quarter of the total State budget. The costs of government school education are projected to rise to $\$ 1.3$ billion in 1998-99.

Although there is a strong and growing non-government education sector, most education continues to be provided through the government school system.

In 1997, the government school system ${ }^{3}$ provided education to over 250000 students. More than a half of these students attend one of the 514 government primary schools and another third attend 88 government secondary schools.

Over 16000 teachers are employed to teach these students at an annual cost in excess of $\$ 600$ million. A further 6000 school based staff support the administrative structure of providing education. The Department holds over 900 sites throughout the State with the total value of the school land and buildings exceeding $\$ 3.2$ billion.

The number of students in government schools varies significantly, with primary schools ranging from nine to 900 students and secondary schools from 150 to almost 1900 students.

School size impacts on both the efficiency of education delivery and the educational opportunities available to students. A certain 'critical mass' is considered necessary to enable an adequate range of educational opportunities to be provided. This, together with the higher cost per student of operating smaller schools, has led to considerable pressure to restructure schools.

Since the early 1990s, the Department has implemented a number of restructuring strategies.

However, the trend to restructuring of schools is not just a Western Australian phenomenon. School restructuring has also been implemented in other states

[^1]
## Introduction

such as NSW, Victoria, Queensland and South Australia. In Victoria the restructuring process which commenced in the early 1990s lead to 900 out of 1800 state schools being reviewed with closures of 250 sites.

Restructuring can be highly contentious as schools are often the focal point of community interests and, in country areas, school closure can have a significant impact on the local economy.

Maintaining schools as part of a community's infrastructure, can be viewed as a necessary 'community service obligation' to be borne by the Department in its management of the school system.

Conversely, some argument is emerging that an inequitable distribution of scarce resources results where a low enrolment school is kept open in response to community pressure. The higher cost of maintaining small schools in this instance being viewed as an opportunity cost to other students within the system that would otherwise benefit from any equalisation of resource distribution.

Between 1994 and 1996 a number of Western Australian primary schools were closed or amalgamated as part of the School Rationalisation Strategy. A key aspect of this strategy was the right of parents to decide if a school would close.

In late 1997 the Department introduced the Local Area Education Planning (LAEP) policy which aims to "improve educational opportunities... by considering schools in groups and developing forms of organisation which will increase access to the curriculum in quality facilities". Significantly, restructuring decisions under LAEP remains solely with the Department and Government.

In June 1998, major school restructuring changes under LAEP were announced by the Government. The changes, which affect one metropolitan primary and 12 metropolitan secondary schools are to be implemented from 1999 to 2001.

Planning for primary schools and secondary schools in most other areas commenced in early 1998 and is expected to take up to 12 months with implementation expected in 1999 or 2000. Planning for some schools will not commence until 1999.

## Introduction

## Scope and Approach

The objective of the examination was to provide Parliament with an assessment of the educational and financial implications of operating government schools of varying enrolments.

The examination focused on metropolitan and country primary and secondary schools. District high schools, senior colleges, education support centres and other special schools such as agricultural schools and schools of the air were not included.

Excluded from the scope of the examination was any assessment of student outcomes or quality of teaching.

The scope included assessment of:

- system wide implications of operating low enrolment government schools;
- educational opportunities and curriculum choices available to students attending a sample of primary and secondary schools in both the country and metropolitan area; and
- past and current strategies of the Department to achieve school reorganisation.

A detailed analysis of the use of school facilities was not undertaken as this topic was covered in the Auditor General's report 'Utilisation of School Facilities in the Metropolitan Area' tabled in Parliament in March 1994.

The methodology used in this examination included:

- Assessment of system wide implications of various levels of schools' enrolment including analysis of student-teacher ratios, maintenance costs, surplus classroom capacity, per capita costs, enrolment trends, as well as analysis of school recurrent and capital costs, forecast costs and school asset values.
- In order to gain an appreciation of the issues associated with schools of varying sizes, in depth case studies were undertaken of ten primary and five secondary schools, ten of which were in the metropolitan area. These schools were from five different education districts, comprising a mixture of high, middle and low enrolment schools and included schools with Commonwealth assessed levels of social disadvantage.


## Introduction

| Primary Schools | 1998 <br> Total Enrolment | Year 1 to 7 Enrolment <br> Growth 1993-1997 | Social <br> Disadvantage Index ${ }^{4}$ |
| :---: | :---: | :---: | :---: |
| A | 789 | $42 \%$ | 0.00 |
| B | 444 | $25 \%$ | 0.63 |
| C | 178 | $41 \%$ | 0.19 |
| D | 138 | $-14 \%$ | 0.70 |
| E | 122 | $-29 \%$ | 0.48 |
| F | 120 | $15 \%$ | 0.00 |
| G | 92 | $-36 \%$ | 0.30 |
| H | 42 | $4 \%$ | 0.00 |
| I | 24 | $29 \%$ | 0.00 |
| J | 20 | $6 \%$ | 0.01 |


| Secondary <br> Schools | 1998 Enrolment <br> Year 8 to 10 | 1998 Enrolment <br> Year 11 to 12 | 1998 Total <br> Enrolment | Year 8 to 12 <br> Enrolment <br> Growth <br> $1993-1998$ | Social <br> Disadvantage <br> Index |
| :---: | :---: | :---: | :---: | :---: | :---: |
| K | 1195 | 665 | 1860 | n/a | 4.97 |
| L | 884 | 487 | 1371 | $10.21 \%$ | 0 |
| M | 419 | 238 | 657 | $-18.59 \%$ | 0 |
| N | 363 | 143 | 506 | $4.33 \%$ | 0.75 |
| O | 327 | 140 | 482 | $1.26 \%$ | 1.15 |

Table 1: Primary and secondary case study schools

- The visit to each school involved discussions with the District Director, the School Principal, teaching and administrative staff, parent representatives and analysis of school records.
- Assessment of the past School Rationalisation strategy and the current Local Area Education Planning (LAEP) Policy involved review of applicable policies and financial records as well as discussions with Head Office staff, District Directors, the Primary and Secondary Principals Associations and the Department of Transport.

[^2]
## Variations Arising from School Enrolment

## Conclusion

Wide variation and shifting distribution of school aged children throughout the State has resulted in a broad range of school sizes and consequent educational and financial inequities:

- students in low enrolment primary schools often must be taught in multi-age classes, have less access to specialist teachers and programs and limited opportunity for socialisation and peer competition.
- students in low enrolment secondary schools are often disadvantaged by markedly reduced curriculum offerings that can impact on their further education or career aspirations.
- correcting educational inequities in low enrolment schools would cost many millions of dollars in schools that already have much higher per capita costs and make less efficient use of school facilities.
- some low enrolment secondary schools are disadvantaging lower school students by shifting teaching resources from lower school to upper school in order to provide a greater range of TEE, non-TEE and vocational education courses.
- lower enrolment schools have a natural advantage in providing pastoral care. Initiatives to improve pastoral care in some higher enrolment schools have been introduced, though this has been costly.

Comparing key elements of education services across schools can help in understanding the impact of variations in school enrolments. This chapter looks at elements such as curriculum opportunities, socialisation, pastoral care, capacity to utilise technology as evidenced by access to computers and the cost per student of operating a school.

Equal access to opportunities, facilities and resources within reasonable structural limitations is an important feature of Government and Departmental policy. This has been an important consideration when reviewing the information.

## Variations Arising from School Enrolment

## Primary Schools

## Variations in enrolment

In a State with such large distances and wide variation in population density, it is not surprising that there is a substantial variation in the size of schools. The average primary school enrolment across the State is 266 students. Ten per cent of primary schools have enrolments below 44 students while 10 per cent have enrolments above 549.

The variation in enrolment is evident in both the country and metropolitan area. Country schools range in size from nine to over 800 students, while metropolitan schools vary in size from 42 to 950 students.

Various literature indicates that a certain threshold in school size provides for a more effective and efficient delivery of educational services.

Whilst no definitive minimum size is evident, research suggests that primary schools of more than 200 provides sufficient staff flexibility to form class groupings and provide programs based on student and whole of school needs.

Sixty per cent of country primary schools have enrolments less than 200 of which half have enrolments below 50. Twenty per cent of metropolitan primary schools have enrolments below 200.

About nine per cent of country primary schools and 18 per cent of metropolitan primary schools have enrolments above 500 students.

## Variations Arising from School Enrolment



Figure 1: Country primary school enrolment
Country school enrolment varies with the size of the local community with some country schools in the larger centres having quite high enrolment.

Source: EDWA


Figure 2: Metropolitan primary school enrolment
Metropolitan primary schools range in size from 45 to 950 students.

## Variations Arising from School Enrolment

## Per capita cost of primary schools

The recurrent cost of running an average size primary school is approximately $\$ 1$ million per annum. Figure 3 shows that primary school operating costs vary from about $\$ 2500$ to $\$ 13000$ per student per year.


Figure 3: Per capita cost and enrolment for primary schools
Low enrolment schools cost more to operate on a per student basis.
Source: EDWA

Amongst the case study primary schools, per capita costs at the lowest enrolment school were 2.7 times greater than that of the highest enrolment school.

The reason for the cost variance is the diseconomy of scale in low enrolment schools as evidenced by low student-teacher ratios (Figure 5) and low student-non-teaching staff ratios.

The diseconomies of scale results from each school having a minimum staffing profile of Principal, Registrar and gardener in addition to a standard set of facilities and grounds irrespective of enrolment numbers.

Resource sharing between schools is one way staffing costs could be reduced and this does occur amongst specialist teaching staff. However, it has not extended to non-teaching staff such as Registrars. Potential exists to reduce operating costs through two or three schools in close proximity sharing the one administration.

## Variations Arising from School Enrolment

## Student-teacher ratio

The Department uses a formula to allocate teachers to primary schools. The formula is enrolment-driven, but also takes account of other factors including a social disadvantage index.

Amongst all primary schools the student-teacher ratio was 18.5 in 1997, down from 18.8 in the previous year. Figure 4 shows that country schools tend to have lower ratios than metropolitan schools.


Figure 4: Student-teacher ratios in country and metropolitan primary schools Student-teacher ratio in metropolitan schools tend to be higher than in country schools.

Amongst the case study schools, the average student-teacher ratio varied from 23 students per teacher at the school with highest enrolment to nine students per teacher at the smallest school (Figure 5).


Figure 5: Enrolment and student-teacher ratio in case study primary schools
The ratio of students per teacher varies between schools. All schools apart from schools A and $B$ had a student-teacher ratio below the State average of 18.5.

## Impact of low enrolment on educational opportunities

## Multi-grade classrooms

Multi-grade classes are most common in small schools because of the fewer number of teachers. Small country primary schools are most likely to have multi-grade classes, though they also occur in metropolitan schools.

Figure 6 shows that a high percentage of students in the low enrolment case study schools are in multi-grade classes.

Some parents at the low enrolment schools were concerned about having children in multi-aged classes particularly if they had doubts about the ability of the teachers to manage the complexity of the education delivery.

In one third of country schools, up to four grades are taught within a single class. For some students this means that they will be taught in split grades for all their primary schooling.

## Variations Arising from School Enrolment



Figure 6: Enrolment and students in multi-grade classes in case study primary schools
Students attending schools G, H, I and J will be sharing a classroom with students from other grades throughout their primary schooling years.

## Curriculum

The range of learning experiences that a school makes available to students is delivered in accordance with what students are expected to know and be able to do at different stages of their schooling. The Department's aim is to deliver a common curriculum to schools that "... develops understandings, skills and attitudes appropriate to the developing needs and interests of all students in a wide variety of areas...".

Within primary schools the core curriculum covers English, mathematics, science, society and environment, technology and enterprise, health and physical education and the arts. The core curriculum is delivered to all schools.

## Access to specialist programs

Schools can also provide through specialist teachers, additional access and more in-depth learning experiences in areas such as Languages other than English (LOTE), music, drama, art and physical education.

## Variations Arising from School Enrolment

Specialist programs have been identified in the Government Schools Education program as a requirement for the educational development of students.

The Government has set a target that by the year 2000, all students between Years 3 to 10, will be studying at least one language other than English. In 1997, 51 per cent of Year 3 to 7 students were studying LOTE.

Primary schools have the flexibility through the staffing formula to organise their staffing to provide specialist teachers and programs. Whilst the formula is mostly enrolment driven, it does also take into account special needs of the school such as student disabilities and the socio-economic area in which the school is located.

The extent to which a school is able to access additional funding can also influence staffing flexibility within a school.

Access to specialist programs amongst the case study schools varied considerably with students in the high enrolment schools generally better off.

Figure 7 shows that students in the high enrolment schools had access to around 2.5 hours per week of specialist programs compared to half an hour per week in two of the very low enrolment schools. This disadvantage was compounded in these two schools as LOTE was only offered to Years 6 and 7 via telematics ${ }^{5}$, compared to the other schools which offer LOTE to at least Year 3 upward.

The variety of specialist programs also varied significantly, with the highest enrolment school offering eight choices compared to just one at two of the low enrolment schools.

However, low enrolment schools can still have good access to specialist programs if they are able to get additional funding such as through the Commonwealth Literacy Program or from significant parental contributions.

School D which is a low enrolment school is able to use extra funding it receives from the Commonwealth Literacy Program and additional staffing arising from the large number of educational support children within the school, to offer access to specialist teachers and programs.

[^3]
## Variations Arising from School Enrolment

At school J, funding by the school Parents and Citizens Association at a cost of \$2500 per year ${ }^{6}$ enables students to receive approximately four hours per week of LOTE, music/speech and drama.


Figure 7: Number of specialist programs and amount of access in case study primary schools Enrolment of each school is presented at the top of each bar. With the exception of school J, the trend shows that low enrolment schools provide less specialist programs to their students.

## Access to computers

All case study schools placed a high priority on student access to computers and use of the Internet. The schools saw student familiarity with computers as important in preparing them for a technological future.

The Department has attempted to achieve some equity in relation to computers in schools by ensuring that each school has at least one computer per 100 students.

All the case study schools had a far better student per computer ratio than the Department's base line with students attending the lower enrolment primary schools generally having better access to computers and a technology program (Figure 8).

[^4]
## Variations Arising from School Enrolment

However, little correlation was found between enrolment and student access to computers.

Better access to computers mostly resulted from schools benefiting by way of funding for social disadvantage, higher contributions from parents, private sponsorship or donations of outdated computers from businesses.


Figure 8: Enrolment and student access to computers in case study primary schools
Student access to computers varies. In school A, 16 students share a computer, while in school J there is a computer for each student.

## Pastoral care

Pastoral care is the means by which a school looks after the personal, social and intellectual welfare of the student. Pastoral care provides students with the support structure for personal development and growth and an environment to maximise learning opportunities.

Schools in low socio-economic areas receive additional funding support to provide an environment to maximise students' learning opportunities. The extent of the funding is dependent on the assessed level of disadvantage.

## Variations Arising from School Enrolment

School D from the case study primary schools has a social disadvantage index of 0.7 and receives funding for an additional teacher to be employed for 3.5 days of the week. This additional teacher support increases the ability of the school to cater for the specific needs of the students.

Parents at the case study primary schools held strong views about pastoral care for primary school children. Many parents commented that smaller schools are particularly beneficial for primary aged students where 'knowing the child' and attention to individual student needs is important for intellectual, emotional and social development.

Against this were concerns expressed by parents and teachers of students at very low enrolment schools about the lack of opportunity for socialisation and peer competition for some students in these schools. However, overall parents felt that the pastoral care advantages outweighed the lack of socialisation.

The lower ratio of students to teachers in small schools goes some of the way to supporting the belief of parents that small schools can provide better pastoral care. As shown in Figure 5, the student-teacher ratio in low enrolment schools can be less than half of that in larger primary schools.

Initiatives at some larger case study schools were found to improve pastoral care by ensuring that special attention is focused on students who need it, whether educationally or personally. At one school with a high socioeconomic disadvantage index, staff were able to be deployed to develop and implement special programs for students at risk of not attaining their full potential.

## Use of classroom facilities

At the time of the examination 25 per cent of primary schools (124 schools) had 21 per cent or more surplus permanent classroom capacity. This is important as it means scarce resources are being applied to maintain unused or underutilised facilities (Figure 9).

## Variations Arising from School Enrolment



Figure 9: Primary schools - percentage of surplus classrooms
Thirty primary schools have over 50 per cent surplus capacity.
Source: EDWA
All casestudy schools apart from school A and school B had excess capacity ranging from 16 per cent to 33 per cent. Figure 10 shows that of the capacity being used the classroom occupancy rates varied from almost 100 per cent in the two fully utilised schools to less than 40 per cent.


Figure 10: Enrolment and student occupancy rate of classrooms Lower enrolment schools have a lower occupancy rate of classrooms.

## Variations Arising from School Enrolment

Significant inequities existed in student comfort levels between the high enrolment schools that are crowded and low enrolment schools with excess capacity. At one primary school the library was used as an interim classroom whilst waiting for transportables to be delivered. At this same school the crowding has resulted in the playgrounds being worn down and students having to play on sand rather than grass.

The impact of this in terms of educational and social outcomes was not established.


Worn grassed playing area at a large metropolitan primary school.

## Secondary Schools

## Variation in enrolments

Secondary schools like primary schools vary widely in enrolment size, and like primary schools the variation is most noticeable in country schools.

The average enrolment in secondary schools across the State is 854 students. Ten per cent of schools have enrolment below 353 students while ten per cent have enrolment above 1235 .

## Variations Arising from School Enrolment

Country secondary schools range from the smallest in the State with just 150 students to the largest with 1859 students. Amongst Perth metropolitan secondary schools enrolment varies from just over 400 students to almost 1700.

The Department has suggested a threshold of 400 students in Years 11 and 12 is the minimum number needed to provide an acceptable range of Tertiary Entrance Examination (TEE) and non-TEE (including vocational education) subject offerings.

Ninety six per cent of country secondary schools and 73 per cent of metropolitan secondary schools have Year 11 and 12 enrolments below 400 students.

In terms of total school enrolments, seven per cent of country secondary and 20 per cent of metropolitan secondary schools have greater than 1200 students (Figure 11). These schools can be considered large.


Figure 11: Variation in enrolment - secondary schools
Secondary schools range in size from about 150 to almost 1900 students.

## Variations Arising from School Enrolment

## Per capita cost of secondary schools

The recurrent cost of running an average secondary school is about $\$ 3.6$ million per annum.

Figure 12 shows that the per capita cost of running secondary schools varies between \$3 250 and \$8 000.


Figure 12: Per capita cost and enrolment for secondary schools
Low enrolment schools cost more to operate on a per student basis.

## Variations Arising from School Enrolment

Amongst the case study schools, per capita costs at the two largest schools were about \$1700 per student less than the smallest school.

Other factors can also contribute to higher per capita operating costs, but since they are marginal they do not affect the overriding correlation between costs and enrolment. For instance, funding for social disadvantage at school K increased that schools operating costs by only $\$ 188$ per student. At school M, Departmental funded specialist programs cause per capita costs to rise by only $\$ 123$ per student.

## Student-teacher ratio

Amongst all secondary schools the student-teacher ratio was 13.0 in 1997, up slightly from 12.9 in 1996. Figure 13 shows that like primary schools, country secondary schools tend to have lower ratios than metropolitan schools.


Figure 13: Secondary school student-teacher ratio
Country secondary schools tend to have a lower ratio of students per teacher than metropolitan secondary schools.

## Variations Arising from School Enrolment

Amongst the case study schools, the highest ratios were at school L with 14.7 students per teacher and school K with a ratio of 13.7. The three low enrolment schools were all below the system average with school $M$ having the lowest ratio of 12.1.

## Impact of low enrolment on educational opportunities in secondary schools

Secondary school education provides the framework for students to proceed into further education, training and employment. An important requirement of secondary education is the availability of a comprehensive range of TEE and non-TEE subjects appropriate to the student's interests, needs, abilities and career aspirations.

Students taking TEE subjects are eligible to be assessed for tertiary entrance by the school and by sitting an external examination. Students undertaking non-TEE subjects receive a more general education which is wholly assessed by the school. Non-TEE subjects include vocational education courses that provide accredited links between school and industry.

The breadth and depth of curriculum is used as a measure of curriculum offerings at a school. The breadth of curriculum is a measure of a school's ability to offer subjects across a range of broad learning areas. Depth of curriculum measures the ability of the school to provide diversity within a broad curriculum area.

Enrolment size in secondary schools is usually a predictor of curriculum access, with low enrolment schools unable to provide their students with the same range of subjects as higher enrolment schools because of the smaller number of teachers. The situation applies to both lower secondary and upper secondary years.

## Curriculum - Lower Secondary

Amongst the case study schools, students in Year 9 who attended the higher enrolment schools (schools $K$ and $L$ ) are provided with more than twice the range of options of Year 9 students in the low enrolment schools (Figure 14 ).

## Variations Arising from School Enrolment

For Year 9 students at school $M$ the disadvantage is compounded by a shifting of teaching resources away from the lower school and towards the upper school so as to provide more TEE and non-TEE subjects and vocational education courses. This shift involved four full time teachers representing eight per cent of the schools teaching resources.

The Department and some schools acknowledged that the shifting of resources from lower secondary to upper secondary is a common practice that results in lower secondary years being resourced to a level below the Department's staffing formula.

At school O, 67 per cent of the Year 9 options are also offered to and run in conjunction with Year 10 students. By running joint Years 9 and 10 classes, the school has been able to provide 16 different options. If the Year 9 and Year 10 students were not mixed it is unlikely that the school could provide the current range of options.


Figure 14: Year 9 options provided in case study secondary schools
Options provided varied significantly between schools, with school K offering 36 options and school M offering 11 options to their Year 9 students.

## Variations Arising from School Enrolment

## Curriculum - Upper Secondary

In upper school, the challenge for schools is to provide an acceptable range of TEE and non-TEE subjects and vocational educational programs.

For upper school, the Department uses a Selection Index (SI) as an indicator of the breadth and depth of subject choice.

The SI is a measure of the total number of subjects offered plus the number of repeats or multi-sets of subjects for a year group. This measure reflects the ability of the student to select their preferred subject as well as the school's ability to provide an adequate range of subjects.

The Department has established that an SI of greater than 55 for each upper secondary grade provides the recommended level of curriculum provision.

Of the case study schools, the SI of the three lowest enrolment schools was 20 per cent to 40 per cent below the recommended level. In contrast, the curriculum choices and range of the larger schools is well above the recommended SI level and about two to three times that of the low enrolment schools (Figure 15).

To attract more students, some low enrolment schools offer special programs such as vocational programs or intensive language courses. However, this requires that the range and access ${ }^{7}$ to other subjects be reduced so as to release the teaching resources needed to run the specialist subjects.

For some students this can be a serious consequence affecting their ambitions in terms of further education or job opportunities.

[^5]
## Variations Arising from School Enrolment



Figure 15: Upper school enrolment and breadth of curriculum and access in Year 11 in case study secondary schools
All three schools with low enrolment were unable to provide the recommended level of curriculum as measured by a selection index of 55 .

Source: OAG

Correcting this inequity through additional funding of low enrolment schools would be expensive.

It would cost about $\$ 200000$ in teacher salaries to provide Year 11 students at school N with the recommended level of curriculum as measured by a selection index of 55 . If school N was to provide the same breadth and depth of subjects as school K it would cost over $\$ 500000$ in teacher salaries, representing an increase in per student cost of \$3 937.

Introducing split classes is one strategy low enrolment schools adopt to provide a good mix of TEE and non-TEE and vocational subjects.

Figure 16 shows that in schools $\mathrm{M}, \mathrm{N}$ and O , over 50 per cent of all Year 11 and 12 students are being taught non-TEE subjects in a combined Year 11 and 12 class. The effectiveness of operating combined Year 11 and 12 classes depends on the ability of the teacher to manage this style of teaching.

## Variations Arising from School Enrolment



Figure 16: Enrolment and percentage of students in mixed non-TEE classes in case study secondary schools.
At schools M, N and O, over half the Year 11 and 12 students are taught non-TEE subjects in combined classes.

Source: OAG and case study schools

## Pastoral care

The type of pastoral care provided in secondary schools is different but no less important to that provided in primary schools.

Research has found that alienation can be a serious issue for secondary school students. Alienation involves a feeling of powerlessness, isolation, boredom and/or social disengagement which in turn can affect a student's behaviour and satisfaction with and achievement at school.

Pastoral care at secondary schools in addition to that provided by teaching staff includes services such as psychologists, social workers, welfare officers, nurse, chaplain, youth education officer, Aboriginal education workers and on site police officer.

The support officers delivering these services are assigned to schools by the District Education Office or by other government authorities such as the Health Department and the Police Service.

## Variations Arising from School Enrolment

The level of social disadvantage of a school is a major determinant in the allocation of the services. However, low enrolment schools will in general benefit most from the base level of support service that is provided to all schools.

Amongst the case study schools, the potential level of pastoral services that can be given to students is greatest in the low enrolment schools (Figure 17).

The level of social disadvantage is a key factor in interpreting Figure 17. School K is a high enrolment school with a very high social disadvantage index 4.97, yet has a similar level of service to the much smaller school O which has an index of 1.15 . The varying social disadvantage levels and accompanying differences in special funding is offset by the ability of the lower enrolment school to provide a better level of student service.

The better provision of student services by low enrolment schools indicates some justification for operating small schools in low socio-economic areas. The Department has advised that it does not support the view that small schools have better pastoral care.

Whilst large enrolment schools can implement successful strategies to provide greater pastoral care, these strategies can be costly.

In school $K$, reform of the middle school Years 8 to 10 to address pastoral care and teaching issues has required an additional three teachers.

The reform involved restructuring Years 8 to 10 to adopt a teaching approach which is more like that found in primary schools. This was done by dividing students into sub-schools and further into learning teams. The learning teams are staffed by a small number of teachers who take responsibility for the pastoral, behavioural and curriculum needs of the students within their team.

## Variations Arising from School Enrolment



Figure 17: Enrolment and student support services in case study secondary schools
Low enrolment and a social disadvantage index improves student access to support services. In school L, with high enrolment and no social disadvantage index, 285 students share a student support service officer. In contrast, school K has 115 students sharing a student support officer.

## Use of classroom facilities

Secondary schools like primary schools have significant surplus capacity. Currently 25 per cent of secondary schools have 21 per cent or more surplus capacity. Thirty three schools have no surplus permanent classroom capacity.

## Variations Arising from School Enrolment



Figure 18: Secondary schools - percentage surplus capacity
Twenty two secondary schools have 21 per cent or more surplus capacity.

Amongst the case study secondary schools classroom utilisation as measured by students per general classroom ranged from a ratio of 22 students per classroom to 56 students per classroom (Figure 19). As previously stated, the social and educational impact of the various levels of student comfort was not established.

## Variations Arising from School Enrolment



Figure 19: Enrolment and students per general purpose classrooms - case study secondary schools
The average number of students per classroom amongst the case study secondary schools ranges from 22 to 56 .

Source: OAG

## Recommendation

The Department should continue to pursue options to minimise structurally based educational and financial inequities.

## Strategies to Address Restructuring Requirements

## Conclusions

- The LAEP policy is an improvement over the School Rationalisation Policy in that greater emphasis is placed on providing the best educational opportunities for students.
- The LAEP process does not have a structured or rigorous approach to identifying and assessing the educational, social and financial cost and benefits of various restructuring options.
- The Department's retention of low enrolment schools in variance to normal asset management and educational criteria impacts on its resources and implies a community service obligation.


## Background

The preceding sections indicate that there are educational, financial and equity reasons for considering restructuring of schools in Western Australia:

- Students in low enrolment schools are often clearly disadvantaged in terms of their educational program, though often advantaged by better pastoral care and accommodation comfort levels.
- Low enrolment schools can be significantly more expensive to operate on a per capita basis, resulting in unequal distribution of limited resources.

Since the early 1990s, the Department has developed and implemented school restructuring policies to improve effectiveness and efficiency. These policies have included School Renewal, School Rationalisation and most recently LAEP.

Evaluating past strategies can provide a useful indicator to the likely success of current or future strategies. This chapter focuses on the restructuring that has occurred since the mid-1990s including the key features, concerns, costs, savings and results.

## Strategies to Address Restructuring Requirements

## School Rationalisation

Between 1994 to 1996, the Department's main strategy for restructuring schools was School Rationalisation. This strategy had three major features:

- Schools considered for closure or amalgamation had to meet specific financial, enrolment, educational, host school, travel, safety and community and social criteria.
- The parents of the students at the school determined through a voting process if closure would occur.
- Savings resulting from the school rationalisation process would in part be directed back to the students in the areas affected. This included a relocation payment to parents of $\$ 200$ for students in Years 1 to 7 and $\$ 300$ for Years 8 to 12.

Seventy seven primary schools were assessed by the Department and community as meeting the criteria for closure. Of these, 11 were closed and 16 amalgamated.

Estimated total savings from the rationalisation including recurrent savings, foregone maintenance and capital upgrades was $\$ 28.5$ million $^{8}$. Incentives to achieve rationalisation totalled $\$ 21.1$ million, representing a 74 per cent redistribution of savings to the local school communities.

The savings remaining for distribution across the entire system was $\$ 7.4$ million. Whilst it could be said that some incentives were generous, it is important to note that the number of schools that closed or amalgamated exceeded the Department's expectations given the parental right of veto.

An unfavourable aspect of the rationalisation process was the competition and divisions created between schools and amongst communities. Frequently during this examination parents and teachers commented on how the rationalisation process resulted in community discord. Comments were also frequently made that the rationalisation was overly focused on financial gains of restructuring without sufficient emphasis on educational benefits.

[^6]
## Strategies to Address Restructuring Requirements

## Amalgamation of Geraldton SHS and John Willcock SHS

The amalgamation of Geraldton and John Willcock Senior High Schools in 1997 is seen as the model that shifted the focus of restructuring away from financial viability, to a prime focus on the educational benefits to students.

The amalgamation marked the end of the School Rationalisation process and the development of the Local Area Education Planning Framework.

Two major causes brought about the amalgamation:

- Both schools were unable to meet the educational needs of their students in post-compulsory years.
- A national study that incorporated Geraldton found widespread alienation of students in Years 8 to 10 .

A number of options for amalgamation based on improving educational outcomes were discussed by the Department and school community over a period of about nine months. Some of these included:

- A dual campus with Years 8 and 9 at one site and Years 10 to 12 at the other site. This option was selected.
- No student population shift but resource sharing in upper school;
- a three campus model (two campuses for Years 8 to 10 and one for Years 11 and 12).
- Specialisation in Years 11 and 12, with one campus being TEE-TAFE oriented and the other being TAFE-Vocational Education oriented.

Whilst student outcomes from the merger will not be known for at least three years, it is apparent that post-compulsory students now have a much improved choice of curriculum.

The financial cost of amalgamation has been high. Implementation will cost $\$ 1.4$ million in the first five years of operations due to the commitment to the local communities not to reduce staffing levels and the costs associated with operating dual administrations, telecommunications links between the two campuses and transition costs. In particular, the agreement not to reduce

## Strategies to Address Restructuring Requirements

teaching and non-teaching staff numbers will cost $\$ 960000$ over five years. As a direct result, the intended target of cost neutral implementation has not been achieved.

A key feature missing from the Geraldton restructuring process has been the absence of any assessment of the cost and benefits of the various options. The importance of proper cost benefit analysis to enable full understanding of the educational and financial impacts is discussed later.

## Local Area Education Planning

LAEP was launched in September 1997 with the objective of achieving a reduction in the duplication of educational services and ensuring that the educational needs of all students are met. It is the Department's current strategy for ensuring school resources are located where they are most needed.

A basis of LAEP is that a certain threshold in school size provides for a more effective and efficient delivery of educational services. This threshold is termed the 'critical mass'.

The Department and many educational authorities in other States argue that a minimum critical mass provides a school with the ability to provide a comprehensive and diverse curriculum and adequate opportunities for socialisation and personal development.

From a financial perspective, as the size of a school increases the cost per student of operating the school is reduced. However, this effect diminishes as the size of the school increases.

LAEP departs from the approach taken under School Rationalisation by placing emphasis on providing the best educational opportunities for students and by shifting focus to groups of schools in close proximity rather than individual schools.

Another difference is that sole decision making responsibility for restructuring rests with the Government and Department, though community consultation is a requirement.

## Strategies to Address Restructuring Requirements

LAEP is driven at the District level ${ }^{9}$. Options for local area education are drafted by the District Director, parents, Principals and teaching and nonteaching staff. Secondary school students are also represented in the process. District Directors are ultimately responsible for the development, coordination and implementation of the LAEP plans.

## Timeframe and results so far

The LAEP timeframe and processes gives priority to planning of secondary school education within the metropolitan area and major regional centres.

Metropolitan secondary schools planning commenced late in 1997 and is now well advanced. Implementation is expected to commence in 1999 or 2000.

In June of this year the Government announced the first outcomes from the metropolitan secondary school planning. It included the closure of four schools, the conversion of four others to middle schools, and construction of four new schools, one of which is on an existing site.

On current enrolments, the restructuring will result in about 2300 students moving to a new school.

Planning for primary schools and secondary schools in most other areas commenced early in 1998 and is expected to take up to 12 months. However, one outcome; the closure of one metropolitan primary school of just over 100 students has been announced.

Current indications are that LAEP will result in further significant restructuring to that announced in June 1998. Scope for further school closures remains though this option is unlikely to be much used.

[^7]
## Strategies to Address Restructuring Requirements

## Concerns with LAEP

The concepts underpinning LAEP appear to be an important step forward from the School Rationalisation Strategy. Nevertheless, a number of concerns remain which, if not resolved, could affect the eventual outcomes of the LAEP process:

- The process has not incorporated sufficient rigour in the appraisal of the costs and benefits of various restructuring options. At the time of examination there was no structured approach to the appraisal of the various options that might meet the local needs, such as a multi-campus secondary school, construction of a new school or extensions to an existing site. (See Appendix 1 for further explanation and examples).
- At the time of the examination, restructuring plans were not taking account of the cost of establishing new or re-routing existing bus routes. As these costs might be considerable, it is important they be factored in to any restructuring decision. Recently, a set of draft principles was developed by the Department of Transport to ensure that LAEP includes the development of transport plans.
- Inequity in resource distribution. Districts where property values are high benefit more from the savings generated from school closures than Districts where values are low. During the course of this examination, the Minister announced a change to this policy to enable schools in lower socio-economic areas to retain more than 66 per cent of asset realisation. This will partly address this concern.
- A lack of support in terms of personnel and expert advice was seen by some District Offices as a problem in conducting the LAEP process, particularly in country areas. Similar comments about the availability of necessary skills at the district level were expressed by parental groups and schools.
- The incentive system encourages amalgamations of country schools rather than closures. Recurrent savings from country school closures are retained by the local area for only two years. In comparison, if schools in a cluster amalgamate (e.g. operate as dual campuses or adopt hub school concept) then recurrent savings are retained indefinitely. In the metropolitan area, only one year's recurrent savings are retained at the local level regardless of whether the restructure involves closure or amalgamation.


## Strategies to Address Restructuring Requirements

- School profile information provided to District Offices for planning purposes often contains outdated and inaccurate information about schools in the district.
- Some parents believe that the LAEP process is School Rationalisation revisited and viewed with scepticism the capacity of LAEP to offer benefits. Parents at a number of schools were concerned about a lack of consultation. Others commented that the Minister and Department should get on and make any decision about restructuring to avoid competition and division amongst the school communities.


## Recommendation

The Department and Government should review those aspects of LAEP identified in this report as being a concern and in particular, the need for more detailed cost-benefit analysis of restructuring options.

# Appendix 1: A Structured Approach to Assessing the Educational and Community Benefits and Costs of LAEP Options 

This section presents a better practice model for providing rigour and transparency to the decision-making process for restructuring and planning the delivery of education within a local area.

The model uses cost-benefit and cost-effectiveness analysis techniques to assess the financial implications of various options in net present value terms while non-financial factors are assessed using a weighting and scoring system.

The model provides a logical and consistent method of assessing a number of planning options. It also allows the community to be involved in the development of the options and the identification and weighting of nonfinancial factors.

While it can assist with making judgements about the relative worth of options, it is not a substitute for such judgements being ultimately made by accountable officers.

Two examples are provided as hypothetical cases although the information is based on a realistic and composite set of data gathered during the examination. Educational experts may well disagree with the weighting given to the non-financial factors or suggest other factors. However, this should not be allowed to detract from the adoption of a more rigourous mechanism for assessing options.

## Example 1

In this scenario, two secondary schools are in close proximity with one school considered to be low enrolment and the other with adequate enrolment.

- Option 1 is the base case where no change is considered.
- Option 2 is the amalgamation of the two schools, operating over two campuses (a post-compulsory campus and a lower secondary campus).
- Option 3 is the closure of one school and the transfer of students to the other. The closure would provide capital funds from the sale of the site which would be used to offset the cost of constructing new facilities at the other school to accommodate the extra students.


## Appendix 1: A Structured Approach to Assessing the Educational and Community Benefits and Costs of LAEP Options

The results of the assessment suggests that Option 2 is the most favourable option given that it shows significant positive benefits on the non-financial factors (particularly educational benefits) and is close to cost neutral.


Notes:
(a) Based on land value.
(b) Based on premise that the maintenance of new facilities rises significantly after 15 years.
(c) In this example, no significant student transportation costs are expected.
(d) Discount rate is five per cent.
(e) Rating scale: Negative impact $=-1$ to -5 . Positive impact $=1$ to 5 . Neutral $=$ no change.

## Appendix 1: A Structured Approach to Assessing the Educational and Community Benefits and Costs of LAEP Options

## Example 2

In this scenario, two secondary schools are in close proximity with both being low enrolment schools.

- Option 1 is the base case where no change is considered other than sale of surplus land.
- Option 2 is for the amalgamation of the two schools, operating over two campuses (a post-compulsory campus and a lower secondary campus).
- Option 3 is for the closure of one school and the transfer of students to the other. The closure would provide capital funds from the sale of the site which would be used to offset the cost of constructing new facilities at the other school to accommodate the extra students.

The results of the assessment suggests that Option 3 is the most favourable option given that there are positive benefits on the non-financial factors (particularly educational benefits) and there is significant potential for cost savings. However issues associated with pastoral care and community concerns would require special attention in the implementation of Option 3.

## Appendix 1: A Structured Approach to Assessing the Educational and Community Benefits and Costs of LAEP Options

|  |  |  | Option 1 |  | Option 2 | Option 3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Capital |  |  |  |  |  |  |  |
|  | Constr |  |  | \$0 | \$0 |  | \$5 350000 |
|  | Asset | Sale ${ }^{(a)}$ | \$1 200 | 000 | \$1 200000 |  | \$2 802000 |
| IT 6 | T Infrastru | ucture |  | \$0 | -\$113 400 |  | \$0 |
|  | Capital Up | grades |  | \$0 | \$0 |  | \$1 200000 |
| Recurrent - over 15 years ${ }^{(\mathrm{b})}$ |  |  |  |  |  |  |  |
|  |  | alaries |  | \$0 | \$399 343 |  | \$1512 078 |
|  |  | ehicles |  | \$0 | -\$14 966 |  | \$0 |
|  | Staff | Travel |  | \$0 | -\$48982 |  | \$0 |
|  | Maint | nance |  | \$0 | \$0 |  | \$386 924 |
|  | Conting | encies |  | \$0 | \$0 |  | \$651 132 |
|  | School | Grant |  | \$0 | \$0 |  | \$115 715 |
|  | Utilities | Grant |  | \$0 | \$0 |  | \$232 391 |
| Tel | ecommunic | ations |  | \$0 | \$23 945 |  | \$0 |
| Student | Transporta | ation ${ }^{(c)}$ |  | na | \$na |  | \$na |
| Transition |  |  |  |  |  |  |  |
|  |  | taffing |  | \$0 | -\$25 000 |  | -\$25 000 |
| Planning G Professio | nal Develo | pment |  | \$0 | -\$43820 |  | -\$43 820 |
|  | Mar | keting |  | \$0 | -\$33 000 |  | -\$33 000 |
|  | IT Upg | grades |  | \$0 | -\$55000 |  | \$0 |
|  |  | Other |  | \$0 | -\$39 550 |  | -\$39 550 |
| Net present value |  |  | \$1 200 | 000 | \$1 202369 |  | 12053870 |
| Non-financial weigh | tings (refer | below) |  | -60 | 200 |  | 160 |
| Weighting and Scoring of Non-Financial Factors |  |  |  |  |  |  |  |
|  |  | Rating |  |  | Overall Score |  |  |
| Key Factors | Weighting | Option 1 | Option | Option 3 | Option 1 | Option 2 | 2 Option 3 |
| Yr 11 G 12 curriculum choice and diversity | 30 | $-3$ | $3$ | $3$ | -90 | $90$ | 90 |
| Yr 8 to 10 breadth and depth of curriculum | 30 | -3 | 3 | 3 | -90 | 90 | 90 |
| Pastoral care | 20 | 3 | 3 | 2 | 60 | 60 | 40 |
| Community support | 20 | 3 | -2 | -3 | 60 | -40 | -60 |
|  |  |  |  |  | -60 | 200 | 160 |

Notes:
(a) Based on land value.
(b) Based on premise that the maintenance of new facilities rises significantly after 15 years.
(c) No costing data is available for this example.

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[^0]:    1 Primary schools of less than 200 and secondary schools with less than 400 students in Years 11 and 12.
    2 Primary schools of more than 500 students and secondary schools of more than 1200 students.

[^1]:    ${ }^{3}$ In addition, about 95000 students are enrolled in non-government schools.

[^2]:    ${ }^{4}$ Currently the social disadvantage index applied to schools varies from 0 to 4.97 .

[^3]:    5 Telematics is the use of electronic communication to deliver a curriculum which otherwise could not be made available to students.

[^4]:    ${ }^{6}$ Not included in the calculation of the per capita cost of the school.

[^5]:    7 The subjects may be offered only once on the timetable

[^6]:    ${ }^{8}$ As at December 1997 but excludes the two schools that closed in December 1997.

[^7]:    Education District Offices have been set up across the state to provide support to schools within an established education district. District Directors are responsible for the leadership and management of curriculum, student support services and resources in their districts.

