

CHAPTER 8 SUPPLY AND DEMAND

Predicting supply and demand in the teaching profession is quite a complex process. Accurate predictions are important to the status of the teaching profession. Incorrect predictions resulting in an undersupply of teachers can jeopardise the quality of education because governments may be tempted to meet the shortfall by increasing class sizes or employing unqualified teachers. The traditional remedy of employing overseas trained teachers is no longer an option since supplying countries are themselves facing a shortage. An oversupply is costly, both for the individual teachers unable to obtain work in the profession and for the broader community which has financed their education. In each of these situations, the status of teachers is adversely affected. It is therefore imperative that accurate methodology is employed to predict future demand.

THE PRESTON REPORT

In January 1997 the Australian Council of Deans of Education released a report by Barbara Preston entitled *Teacher supply and demand to 2003 - projections, implications and issues*. The aim was to stimulate discussion on the critical questions associated with the supply of and demand for teachers, and in this it has been successful. Although some people dispute the extent of Preston's predicted shortfall in teaching graduates, most authorities agree there will be a shortage of qualified teachers within the next decade.

Preston found existing shortfalls in some States and subject areas. She predicted that demand would increasingly outstrip supply in all States except Tasmania. On the extent of the projected shortfall Preston said:

Where a very serious shortfall is expected (Queensland primary and South Australian secondary in the short term, and Victorian secondary in the longer term), the number of graduates projected by the universities is less than half the minimum number necessary to meet the expected demand.¹

1 Preston, B, *Teacher supply and demand to 2003 - projections, implications and issues*, January 1997, Australian Council of Deans of Education, p 1

Preston considers the surplus of education graduates in the first half of this decade can be traced to two effects of the economic recession in the early 1990's. Firstly, alternative job opportunities were limited, resulting in lower resignation rates, and secondly there was a sharp reduction in teaching staffing levels due to budgetary constraints. These combined to produce a pool of unemployed teachers which affected recruitment over the next several years. She claims teacher education intakes were adjusted to this artificial level and that this will result in an undersupply which, without intervention, will increase over coming years.²

Other factors contributing to the expected undersupply of teachers addressed by Preston include:

- increased retirement rates as a larger percentage of teachers move into retirement age
- high drop out rates for beginning teachers
- a predicted increase in growth of student enrolments
- availability of alternative employment opportunities for teaching graduates
- limited overseas recruitment because of teacher shortages in traditional supplier countries.

Objections to Preston's projections

A different view is presented in DEETYA's report *Secondary School Teacher Supply and Demand*. Although DEETYA agrees there will be supply shortages they dispute the level and extent of teacher undersupply.

The disparity between the conclusions of the Preston report and DEETYA's view of the likelihood of secondary teacher shortages appears to relate mainly to two influences: higher projected *separation rates* from teaching assumed in the Preston report; and DEETYA's view that the present pool of surplus teachers, resulting

2 Ibid pp 1-2

from years of low teacher demand, will make a substantial contribution to future teacher supply.³

State governments presented a range of views on the Preston projections. The Northern Territory and Victorian governments, for example, disputed the Preston findings.

I do not accept at this stage that the Preston projections are accurate... We think there are problems with a number of elements of the Preston projections, particularly in terms of the pool of trained teachers who are not operating in the area at this stage.⁴

Victoria agrees that issues of supply and demand need to be addressed. However, the predictions of the Australian Council of Deans of Education (ACDE) are not accepted for Victoria.⁵

Other governments generally concurred with Preston's conclusions, if not with the detail of her projections.

Unfortunately the [Preston] report does not separate the government and non-government components, and there are some uniquely South Australian DECS factors which were not incorporated into the report. However, in general DECS supports the view that shortages will be experienced towards the end of the decade and early next decade.⁶

Research conducted by Barbara Preston on behalf of the Australian Council of Deans of Education has supported the trend of teacher shortages across Australia... One needs to be sceptical about workforce projections. The Deans of Education have a vested interest in the projections of supply and demand for teachers as well as a responsibility for drawing attention to employment trends. Clearly the answers change with variations to the assumptions underlying the estimates such as separation rates... However, those who wish to dispute the Preston figures have an obligation to show

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- 3 Submission no 276, vol 15, p 36 (Department of Employment, Education, Training and Youth Affairs)
 - 4 *Transcript of evidence*, Darwin, 14 October 1997, p 824 (Northern Territory Department of Education)
 - 5 Submission no 271, vol 14, p 153 (Minister for Education, Victoria)
 - 6 Submission no 287, vol 16, pp 184-185 (Department of Education and Children's Services, SA)

where they are wrong which will entail research which is equally thorough.⁷

In correspondence to the Committee Ms Preston has defended her projected separation rates on three grounds. Firstly, she feels the age structure of the teaching service based on Census data and information on current and expected ages of retirement indicates significantly increased rates of retirement in the period in question. DEETYA's own report states:

Ageing of the Secondary School Teacher employed labour force is likely to increase wastage rates and result in reduced teacher supply.

(T)he figures do suggest that the impact of retirements in coming years will be much greater for Secondary School Teachers than professional occupations as a whole.

Teachers are relatively more concentrated than all professional occupations in the 35 to 44 year age range, but then appear to leave the profession more rapidly, being relatively under-represented in the 55 to 59 and 60 and over age ranges.⁸

Secondly, Preston believes the economy will improve in this period and therefore alternative employment opportunities will become available for those teachers most likely to leave teaching for other careers (beginning teachers and those under forty).

Thirdly, while taking into account the pool of unemployed teachers, Preston contends that DEETYA's data on this pool is simplistic and lacking in detail. It is limited to government school teachers, when there is much movement back and forth between the private and government sectors. In response to their criticism she states:

(T)he DEETYA report provides no evidence that 'this pool of qualified workers has not been adequately taken into account in the Preston report' - they have no discussion of the various values I give the 'Graduates %' factor which is where I take the 'pool' into account, adjusting its size according to the magnitude of shortages and surpluses from the previous years. I believe that my estimates of

7 Submission no 140, vol 6, p 9 (Department of Education Services, WA)

8 Submission no 276, vol 15, p 29 (Department of Employment, Education, Training and Youth Affairs)

the period which graduates with no substantial teaching experience will remain available is generous. In my report I recommend '... surveys to provide relevant information on the characteristics of people with teaching qualifications who are not teaching ... [including] the conditions under which they would be available for teaching positions.'⁹

The pool of teachers seeking employment includes two main groups. One is re-entrants - those with teaching experience who have resigned and are seeking to re-enter the profession. There is not likely to be a significant number in this category as resignations have been limited for some years. Previously there was a substantial number of women resigning to rear families who would later re-enter the profession. The second group is of people who have graduated but have not obtained permanent teaching positions. Their number is affected by the surplus or shortage of the previous period.

(A)s time goes on members of this pool become less 'available' (as establishing partnerships, families and homes restricts them geographically, and progress in alternative employment usually makes teaching less and less relatively attractive) and less 'suitable' (as their skills and knowledge become progressively rusty and out of date).¹⁰

The Committee supports the general conclusions of the Preston Report. It acknowledges the need for more detailed forecasting of teacher supply and demand. While this is primarily a State government responsibility the Committee considers the Commonwealth could also make a useful contribution by helping to establish a national picture of teacher supply and demand. For maximum effectiveness this should cover government and non-government teachers.

FACTORS INFLUENCING SUPPLY AND DEMAND

Predictions of supply and demand are influenced by a range of factors.

9 Statement in reply of Barbara Preston, point 7, C No. 22322 of 1997, AIRC

10 Comments on *Teacher Staffing Projections: 1998-2003 DECCD Staffing Model* (DECCD October 1997), Barbara Preston, point 5, C No. 22322 of 1997, AIRC

Demand is affected by:

- numbers of predicted student enrolments in schools
- pupil/teacher ratios [PTR]
- changes in governments' policies and priorities
- changes to school starting age; and
- secondary school retention rates.

Supply is influenced by:

- numbers of projected graduates entering the teaching profession
- the availability, suitability and mobility of the pool of unemployed teaching graduates
- teachers' resignation/retirement rates; and
- patterns of extended leave by currently employed teachers.

Government policy on PTR's, the school starting age and the allocation of year 7 to primary or secondary school can all drastically affect supply and demand. The effect on education enrolments of policy changes to HECS fee structures and university funding is at this stage unknown. Alterations to intake rates for university education courses will affect graduation rates four years later.

Patterns of School Enrolment

The secondary school retention rate has been in decline since 1992.

Apparent Retention Rates for full-time secondary students
Years 10, 11, and 12, 1990 - 1996

Year	Year 10	Year 11	Year 12
1990	98.2	80.5	64.0
1991	98.8	86.0	71.3
1992	99.1	87.8	77.1
1993	98.3	87.4	76.6
1994	97.0	85.3	74.6
1995	96.4	83.3	72.2
1996	96.7	83.4	71.3

Source: ABS, *Schools Australia, 1990 -1996* (Cat. No. 4221.0)

Movements in the economy and policy changes like the Common Youth Allowance [CYA] may alter school retention rates substantially. In times of high employment, year 12 retention rates fall as more students leave school to take up employment.

From July 1998 unemployment payments, AUSTUDY and other benefits currently paid to 18 to 20 year olds will be combined as the CYA. This change will take place from January 1999 in the case of 16 and 17 year olds. The CYA will contain strong incentives for young, unemployed people to participate in education. Conservative DEETYA estimates on the effect of the CYA indicate that *an additional* 12000 young people aged between 16 and 17 could be returning to school in 1999¹¹. Many contend this figure could be much higher. Indeed, many school authorities are working on an assumption of an increase of around 25000 students nationally. The Victorian Education Minister, Phil Gude, estimates an increase of around 6000 students in Victorian government schools alone¹².

11 DEETYA answer to Question on Notice 354 during Supplementary Estimates Hearing 1997/98, Vol 2 of Additional Information, p 35

12 *The Age*, 18 July 1997

Teacher Training, Graduation and Employment

Supply and demand is affected both by enrolments in education faculties and by the number of graduates entering the profession.

ABS data reveals the percentage of tertiary qualified employed persons with education as their main field of study who found employment as teachers was 57.2% in 1993 and 53.9% in 1995.¹³

Education faculties are in transition as three year pre-service teacher education degree are replaced by four year courses. In addition, some universities are increasing their graduate diploma of education courses from one to two years. 1996 was the last year in which three year trained teachers graduated. The first of the compulsory four-year trained teachers will graduate in 1998. During the transition, in 1997, there was a decline in the number of teachers graduating.

If the status of teaching is allowed to decline further, this will reduce still further the number of education graduates entering the profession.

Supply and demand is also affected by changes to enrolments in education faculties. These are currently declining.

At the time of writing, conclusive 1997 enrolment figures for education faculties in universities were available only for Victoria. This was the only State in which overall application figures for universities did not decline sharply. In the last year, Victorian education faculties have dropped 5.8% in first preference applications and 7.1% in any-other-than-first preference applications. This compares with a statewide drop in enrolments of 5% for all departments.¹⁴ Over a two year period there has been a drop of 8.3% and 12.1% respectively. With the exception of the agricultural and husbandry faculties, the education faculty has suffered the largest decrease in applications.

A comparison between education and other discipline completions reveals some surprising facts. An ABS table based on DEETYA's *Selected Higher Education Statistics* shows there has been a growth in education

13 ABS, *Education and training in Australia 1996* (Cat. No. 4224.0), p 72, Table A3.17

14 Figures supplied by National Education Tertiary Union

completions of 5.7% between 1987 and 1994.¹⁵ This is markedly below the growth of 73.1% for all disciplines. Every other discipline had a growth of more than 50% except veterinary science, with 26.8%. Although the growth in education enrolments is from a much higher base than in other disciplines, a growth rate of 5.7% is significantly below that of other disciplines.

Higher Education Student Completions by Fields of Study, 1987 - 94

Field of study	1987	1988	1989	1990	1992	1992	1993	1994	Change 1987 -94 %
	no.	no.	no.	no.	no.	no.	no.	no	
Agriculture, Animal husbandry	1,502	1,439	1,527	1,602	1,753	2,010	2,474	2,348	56.3
Architecture, Building	1,580	1,858	1,655	1,966	2,181	2,461	2,576	2,715	71.8
Arts, humanities/ social sciences	17,137	18,863	18,873	19,607	22,406	25,434	27,244	29,262	70.8
Business, Administration, economics	11,829	13,030	14,419	16,856	19,915	24,136	27,365	28,692	142.6
Education	22,779	23,246	23,665	22,808	25,063	24,657	25,316	24,067	5.7
Engineering, surveying	4,703	4,973	5,137	5,156	5,392	6,051	6,909	7,520	59.9
Health	7,436	8,977	10,168	10,955	13,145	16,173	18,719	20,068	169.9
Law, legal studies	2,895	3,049	3,112	3,231	3,494	3,965	4,846	5,163	78.3
Science	10,075	11,072	11,598	12,086	13,844	15,294	16,999	18,712	85.7
Veterinary Science	321	304	328	354	368	402	412	407	26.8
Total award course completions	80,257	86,859	90,482	94,621	107,561	120,583	132,860	138,954	73.1

The total for 1988 includes some students who could not be classified to a field of study.

Source: A.B.S., *Education & Training in Australia 1996*, Table A3.13,p 69

[based on DEETYA *Selected Higher Education Student Statistics*]

15 As quoted in the ABS document *Education and training in Australia 1996* (Cat. No. 4224.0), p 55 & 70

Higher Education Student Enrolments by Field of Study, 1987-95

Field of study	1987 no.	1988 no.	1989 no.	1990 no.	1991 no.	1992 no.	1993 no.	1994 no.	1995 no.	% Diff 87-95
Agriculture /Animal husbandry	7,061	7,603	7,656	8,559	9,876	10,491	10,988	11,426	11,850	67.8
Architectur Building	8,974	9,323	8,678	10,724	11,243	11,894	12,373	12,998	13,550	51.0
Arts, social sciences/ Humanities	95,714	101,702	101,495	109,551	121,353	125,040	127,812	132,935	139,367	45.6
Business, economics	72,688	80,700	91,592	104,825	112,666	117,104	120,526	122,315	129,177	77.7
Admin Education	72,112	72,616	72,578	74,772	79,598	78,091	76,568	72,277	70,635	-2.0
Engineering surveying	30,098	31,153	33,178	36,019	40,207	43,599	45,715	47,147	48,169	60.0
Health	37,328	42,894	48,195	54,498	61,875	67,181	70,763	70,885	72,137	93.3
Law, legal studies	11,345	11,124	11,693	14,135	16,313	18,001	19,508	21,236	23,490	107.1
Science	51,422	56,021	60,706	67,330	75,961	80,690	83,678	86,136	88,172	71.5
Veterinary science	1,458	1,494	1,526	1,534	1,612	1,682	1,718	1,690	1,674	14.8
Non-award	5,534	6,220	2,779	3,128	3,834	5,592	5,968	6,351	5,956	7.6
Total	393,734	420,850	441,076	485,075	534,538	559,365	575,617	585,396	604,177	53.4

Source: A.B.S. (*Education & Training in Australia*), Table A5.25, p 171

The percentage of higher education students enrolling in the field of education dropped 2% over the period 1987- 1995. Enrolments were rising until 1991, after which they fell by 11%. Significantly, education was the only discipline to decline in that eight year period.¹⁶ Furthermore, 50.2% of all 1995 education commencements were at the postgraduate level (up from 29.52% in 1987/88¹⁷) compared with 28% for all disciplines¹⁸. This is largely due to three year trained teachers upgrading their qualifications. As an increasing proportion of teachers receive four years of training, the numbers undertaking post graduate studies to upgrade their qualifications can be expected to decline further.

16 ABS. *Education and training in Australia 1996* (Cat. No. 4224.0), p 138

17 Australian College of Education. *Teachers in Australian Schools - A 1989 profile, 1990*, p 26

18 ABS. *Education and training in Australia 1996* (Cat. No. 4224.0), p 70, Table A3.15

The relative decline in education faculty enrolments suggests teaching as a profession is becoming less attractive. The pattern is accentuated for some subject areas, such as science.

Ageing and Retirement

The average age of Australian teachers has been steadily increasing since recruitment of new graduates peaked in the early 1970s. It is now about 46, with slight variations between States.

A comparison between 1991 and 1996 figures reveals that while the percentage of teachers over 40 has increased from 40.8% to 54%, the percentage under 30 has decreased from 21.8% to 16%. In comparison, the percentage of other professionals over 40 was 47% in 1995¹⁹.

Approximate age distribution of all Australian teachers 1963, 1979, 1989, 1991, 1996, 2002

Age range	1963	1979	1989	1991	1996	2002
<20	6%	1%	0%	0%	0%	0%
21-30	41%	51%	25%	21.8%	16%	22%
31-40	18%	27%	40%	37.3%	30%	20%
41-51	15%	15%	25%	29.6%	38%	30%
51-60	14%	7%	9%	9.8%	13%	22%
>61	4%	2%	1%	1.4%	3%	6%

Source: Preston, B, *Teacher Supply and demand to 2003*, January 1997, p 55 & 73, Tables 23 & 57

1993 to 1989 - Logan et al (1990) p 3, Derived from survey information.

1991, 1996 - ABS, 1991 & 1996 Census Data

2002 - Projection assuming current trends in approximate age of retirement, age ranges of recruits, PTRs, and no large increases in mid to late career resignations.

Nationally, working on 1997 figures, there are 25,846 teachers in the 45-50 age bracket (11.7%); 15,370 in the 50-54 year bracket (6.9%); 6,514 in the 55-59 age bracket (2.9%) and 3,168 over 60 years (1.4%).²⁰ These figures suggest that in ten years time Australia will have approximately

19 ABS. *Education and training in Australia 1996* (Cat. No. 4224.0), p 45

20 Preston 1997, p 73, Table 57

42,000 or 18.6% of its teachers within the likely-to-retire [55+] age group in comparison with 9,682 or 4.3% currently aged over 55.

There will be a significant increase in separations at this time. For example, in South Australia almost 50 per cent of Secondary School Teachers, Principals and Deputies will be eligible for retirement within the next decade.²¹

The following table shows the resignation pattern of teachers in New South Wales in 1991.

Resignation rates by years of experience, primary and secondary, male and female teachers, NSW government schools, 1991

Experience levels	Primary		Secondary	
	Males	Females	Males	Females
1 year or less	5.6%	5.6%	11.7%	6.1%
>1 to 2 years	5.6%	3.0%	6.9%	4.7%
>2 to 3 years	2.6%	2.3%	4.9%	1.9%
>3 to 4 years	1.7%	1.4%	4.3%	3.0%
>4 to 5 years	4.6%	2.3%	4.4%	2.0%
>5 to 10 years	0.8%	4.1%	2.6%	2.9%
>10 to 15 years	1.6%	4.4%	2.5%	4.9%
>15 to 20 years	1.3%	2.5%	2.1%	2.9%
>20 to 25 years	0.7%	2.2%	2.0%	2.1%
> 25 years	2.2%	1.1%	1.9%	2.0%

Moreover, more teachers take early retirement than other professionals, with most retirements occurring between 55 and 60 years.²² This will have a significant impact when:

21 Submission no 276, vol 15, p 45 (Department of Employment, Education, Training and Youth Affairs)

22 Submission no 276, vol 15, pp 29-30 (Department of Employment, Education, Training and Youth Affairs)

[i]n the year 2007 the average age of the teaching service in the New South Wales Department of School Education will be 49 years. Almost half of the teaching force in the year 2007 will be in their 50s.²³

University education staff are ageing at an even faster rate than school teachers. In 1995 their average age was 53.²⁴ The impact on the supply of qualified teachers is obvious.

Many of these [university educators] will retire or resign over the next five to ten years. This means that by the turn of the century not only is it likely that there will be a significant shortage of teachers, there is also likely to be a shortage of experienced teacher educators.²⁵

Devolution of Staffing Decisions to School Level

The introduction of global budgets and the devolution of staffing decisions to government schools have compounded the difficulties in predicting supply and demand of teachers. The decentralisation of recruitment has added to the difficulty of collecting detailed data on teachers and their availability, and in ensuring that those who are willing to relocate out of their area for employment have the maximum opportunity to do so.

The trend to school-based recruitment will exacerbate the difficulty of filling positions in hard to staff schools.

A general shortage requires central, system-wide measures ... In systems where staffing decisions were devolved to the school's governing body, as in the United Kingdom, New Zealand, and Victoria, Australia, there is little scope for effective local action to address shortage without additional budget allowance or the acceptance of emergency certification. The problem is made worse if the school happens to be in an area difficult to staff. Devolution in these three countries happened to be introduced at a time of teacher

23 Ken Boston, *Continuity and change in Australian Schools*, Unicorn, Vol 23, No 2, July 1997, p 12

24 Professor Adey. *A Professional Matter*. Speech to the Australian College of Education, Adelaide, 4 October 1995

25 Greg McIntosh. *The Schooling Revolution: Too Much, Too Fast?* Parliamentary Research Service Background Paper No 1, 1995-96, p 17

surplus A shortage of teachers will provide the acid test of devolved staffing methods.²⁶

Another example of the difficulties involved with recruitment under a devolved system was revealed in correspondence to the Committee about a 1996 Australian Education Union survey in Tasmania. This showed that nine out of ten schools had difficulty filling teaching positions. In certain cases the Principal was forced to take classes when suitable teachers could not be found. Some schools indicated that the majority of candidates contacted from the list of teachers available for employment were in fact not available. Indicators of serious shortages in some parts of the State included:

- seven schools had employed student teachers
- five schools had employed 'teachers' without qualifications
- teachers were employed with inappropriate qualifications - for example, an early childhood teacher teaching secondary maths.²⁷

The Committee considers this aspect of devolution to be a major concern, the implications of which have not yet been fully appreciated. If governments are serious about ensuring an equitable and quality educational provision across schools then they must see that schools have access to the full range of teaching subject expertise. It is important that individual school programs are not driven simply by the pool of locally available teachers. The problem is compounded where schools compete for staff in short supply. Well resourced schools in middle class areas will be much better placed to attract the range of teachers they need. Disadvantaged schools will have their disadvantage compounded if their curriculum choices are severely constrained by teacher availability.

26 *International Encyclopedia of Teaching and Teacher Education*, Watson and Hatton, 1995, p 609

27 Correspondence to the Committee

VARIATIONS IN SUPPLY AND DEMAND

The state of the economy in general has an effect on the resignation and commencement rates of teachers. When the economy is strong, the number of graduates entering teaching declines and teacher resignation rates go up. Conversely, when alternative employment prospects are limited, more graduates enter their field of study and more teachers who would like to resign remain in the profession.

Supply and demand projections have many dimensions and complexities beyond the straightforward consideration of issues of oversupply and undersupply. These are detailed in Preston's Report, which considers the substantial differences in supply and demand between locations, between primary and secondary schools and between subject areas.

Differences between States

These are highlighted in the following table.

	Supply as a percentage of demand - 1997/8/9 average		Supply as a percentage of demand - average 2000/1/2	
	Primary	Secondary	Primary	Secondary
NSW	91%	113%	75%	85%
VIC	93%	80%	62%	43%
QLD	49%	62%	55%	87%
WA	72%	76%	65%	78%
SA	112%	42%	73%	41%
TAS	93%	114%	68%	149%
ACT	88%	81%	69%	47%
NT	(Graduates are only a very small proportion of recruits, so the NT is vulnerable to effects of shortfalls interstate)			

Source: Preston, 1997, p 2, Tables 1 to 16 pp 35-51

Differences between Regions

The staffing of rural and remote schools continues to be a problem nationwide, particularly in the Northern Territory, Queensland and

Western Australia. While there may be an excess of teachers in city locations, this does not guarantee they will be able or willing to move to rural or remote areas to take up teaching positions. The following evidence relates to Victoria, but is equally applicable in other jurisdictions.

[Teachers] may also be highly immobile. There are very large numbers of teachers in Victoria, we discovered, who were on the list but would only teach in a school within three kilometres radius of their home. This meant that some 60 per cent of the people on the availability list were not available for employment in the schools where vacancies might occur. There are some very significant holes in the highly generalised data that ministries are using to answer this question. I think that speaks to a point that the Preston report has made continuously and that the deans have made and that is that the generalised data that DEETYA relies upon is not sophisticated enough to give a precise delineation either of supply or of demand.

It is not broken down geographically in a precise enough way. It is not broken down between primary and secondary in any sophisticated way. It is not broken down in discipline areas in a very sophisticated way.²⁸

Witnesses described how professional and personal isolation was a disincentive to country appointment. Other problems faced by teachers in rural and remote communities include:

- decreasing school populations
- dwindling community support
- limited curriculum options, resulting in teachers often being asked to teach outside their area of expertise
- higher youth unemployment and suicide rates
- security and accommodation problems
- limited access to professional development.

28 *Transcript of Evidence Adelaide, 16 October 1997, p 878 (Professor Bates)*

A special incentive program is needed to attract teachers to these areas and to retain them there. South Australia, for example, has recently announced a package of incentives designed to attract principals to country areas.

Differences between Subject Disciplines

In its submission to the Inquiry, DEETYA pointed out that there were shortages in some subject areas in secondary schools.

[There] are shortages ... in particular specialisations, such as information technology, certain languages (particularly some Asian languages), physical education, music and mathematics/science. With the exception of information technology, these shortages are confined to one or two states, the particular specialisations in shortage often varying from State to State.²⁹

The Australian Association of Mathematics Teachers believes that DEETYA's claims do not reveal the true extent of the problem.

In a report to the Conference of Education Systems' Chief Executive Officers (March, 1997), the AAMT collated government systems' responses to the issue of supply of mathematics teachers. Of those included, all except NSW indicated current concern about the issue.³⁰

A survey conducted by one of the Affiliates of the AAMT, the Mathematical Association of Victoria (December, 1996) has revealed that there are a number of regional schools already who do not have an appropriately qualified mathematics teacher (that is, a degree with at least two years of recognised tertiary mathematics study and an approved course of study in teaching mathematics). If this situation deteriorates further, it is inevitable that the status of teachers of mathematics will slip even further as unqualified and inexperienced staff are employed to teach mathematics.³¹

The Australian Science Teachers Association supports this latter view.

29 Submission no 276, vol 15, p 14 (Department of Employment, Education, Training and Youth Affairs)

30 Submission no 210, vol 10, p 23 (AAMT)

31 *ibid*, p 20

There are currently acute shortages of qualified science teacher at all levels in secondary schools, and particularly of physics and chemistry teachers in some States and Territories.³²

ASTA frequently hears anecdotal evidence of teachers with poor or no training in science method being asked to teach science classes. In a subject where practical work should be frequent, and could be dangerous in the hands of inexperienced, non-science trained teachers, this is an ongoing area of concern.³³

Proposed Remedies

Witnesses suggested a number of measures to improve the match between supply and demand. These included closer monitoring than currently occurs of the 'pool' of teachers listed as available. The Council of Deans of Education drew the Committee's attention to some shortcomings in the present monitoring arrangements.

As I understand it, the situation in New South Wales is very similar to that in Victoria. Previously the ministry there has simply asked teachers who have entered their names on the list for possible employment whether they wish to remain on the list or not. If they wish to remain on the list, that is one thing; but whether they are actually available for employment is another question altogether. They may already be in satisfactory employment and wish to use teacher education as a possible backstop for loss of current employment.³⁴

Clearly the analysis of teaching supply and demand needs to be much more sophisticated. Information on teaching requirements by subject discipline, for example, would facilitate a more targeted approach to the recruitment and training of teachers.

The Ministerial Council on Employment, Education, Training and Youth Affairs [MCEETYA] is currently undertaking two initiatives relating to teacher supply and demand. The first is the establishment of a Teacher Recruitment Taskforce to develop a recruitment strategy that could be adapted by State and Territory governments to suit local circumstances.

32 Submission no 212, vol 10, p 35 (ASTA)

33 *idib*, p 39

34 *Transcript of evidence*, Adelaide, 16 October 1997, p 878 (Australian Council of Deans of Education)

The Taskforce is to present a proposal for a media campaign to be considered by MCEETYA in April 1998. The second initiative is the monitoring and annual reporting to MCEETYA by States on teacher supply and demand.

The Committee RECOMMENDS that the Commonwealth Government require State and Territory governments, as part of their contribution to the National Report on Schooling, to include information on teacher supply and demand in government and non-government schools, with detailed figures to be included in the Statistical Appendix to that document.

The following tables describe the factors influencing demand and supply of teachers in Australia.

This information is taken from Barbara Preston's work *Teacher supply and demand to 2003 – projections, implications and issues*, Australian Council of Deans of Education, 1997.

Primary teacher demand and supply projections, 1996 to 2003

	1996	1997	1998	1999	2000	2001	2002	2003
Total graduates (demand)	3,495	4,810	6,192	7,460	8,310	8,520	8,832	8,722
Total graduates (supply)	4,600	4,557	4,487	4,994	5,600	5,704	5,598	5,614
Surplus/shortage (no)	1,105	-253	-1,705	-2,466	-2,710	-2,816	-3,234	-3,108
Supply as % of demand	132%	95%	72%	67%	67%	67%	63%	64%

Source: Tables 1,3,5,7,9,11,13 & 15. Preston 1997 Page 52, Table 17

Secondary teacher demand and supply projections, 1996 to 2003

Total graduates (demand)	1996 3,854	1997 5,434	1998 6,468	1999 7,054	2000 7,469	2001 7,877	2002 8,703	2003 9,545
Total graduates (supply)	5,350	5,283	4,762	4,827	5,498	5,574	5,522	5,570
Surplus/shortage (no)	1,496	-151	-1,706	2,227	-1,971	-2,303	-3,181	-3,975
Supply as % of Demand	139%	97%	74%	68%	74%	71%	63%	58%

Source: Tables 2,4,6,8,10,12,14&16. Preston 1997 Page 52, Table 18

Total teacher demand and supply projections, 1996 to 2003

Total graduates (demand)	1996 7,349	1997 10,244	1998 12,660	1999 14,514	2000 15,779	2001 16,397	2002 17,535	2003 18,267
Total graduates (supply)	9,950	9,840	9,249	9,821	11,098	11,278	11,120	11,184
Surplus/shortages (no)	2,601	-404	-3,411	-4,693	-4,681	-5,119	-6,415	-7,083
Supply as % of Demand	135%	96%	73%	68%	70%	69%	63%	61%

Source: Tables 17 & 18 Preston 1997 Page 52, Table 19

**Primary student's enrolments, actual 1985, 1990 and 1995,
and projected 2000, States and Territories and Australia ('000)**

	NSW	VIC	QLD	WA	SA	TAS	NT	ACT	AUST
1985	586.3	433.4	296.9	160.7	144.6	46.8	21.5	32.1	1,722.2
1990	588.1	428.8	314.0	177.4	151.7	48.2	22.7	32.5	1,763.2
1995	606.0	431.6	341.9	187.1	161.9	47.6	24.6	32.8	1,833.7
2000	625.2	423.1	378.3	190.7	160.4	46.5	25.9	34.8	1,884.8
Change 85-90 (%)	0.3%	-1.1%	5.8%	10.4%	4.9%	3.0%	5.6%	1.2%	2.4%
Change 90-95 (%)	3.0%	0.7%	8.9%	5.5%	6.7%	-1.2%	8.4%	0.9%	4.0%
Change 95-2000(%)	3.2%	-2.0%	10.6%	1.9%	-0.9%	-2.3%	5.3%	6.1%	2.8%

Source: 1985-1995 ABS; 2000 - DEETYA Schools and Curriculum Division *Projections of School Enrolments, 1996 to 2005* Preston 1997 Page 58, Table 27.

**Secondary student enrolments, actual 1985, 1990 and 1995,
and projected 2000, States and Territories and Australia ('000)**

	NSW	VIC	QLD	WA	SA	TAS	NT	ACT	AUST
1985	437.5	369.0	189.9	104.0	101.5	36.6	9.4	26.8	1,274.7
1990	442.5	355.5	207.3	107.5	91.1	36.2	9.6	28.5	1,278.2
1995	449.8	338.7	214.2	114.6	82.9	37.1	10.2	28.3	1,275.7
2000	460.9	343.3	239.2	123.7	90.8	34.6	9.7	29.9	1,332.1
Change 85-90 (%)	1.1%	-3.7%	9.2%	3.4%	-10.2%	-1.1%	2.1%	6.3%	0.3%
Change 90-95 (%)	1.6%	-4.7%	3.3%	6.6%	-9.0%	2.5%	6.2%	-0.7%	-0.2%
Change 95-2000 (%)	2.5%	1.4%	11.7%	7.9%	9.5%	-6.7%	-4.9%	5.7%	4.4%

Source: 1985 - 1995 ABS; 2000 - DEETYA Schools and Curriculum Division *Projections of School Enrolments, 1996 to 2005*. Preston 1997 Page 58, Table 28

Secondary Schools: Full-time Pupil to Teaching staff Ratio

(Full time equivalent units) By category of school, 1990 - 1996

School Type	1990	1991	1992	1993	1994	1995	1996
Government	12.0	12.3	12.1	12.1	12.4	12.5	12.7
Anglican	12.4	12.3	12.2	12.1	12.0	11.7	11.8
Catholic	14.0	14.0	14.0	13.8	13.7	13.6	13.7
Other non-government	13.3	13.2	13.1	13.0	12.9	12.8	12.8

Source: ABS, *Schools Australia 1990 - 1996* (Cat. No. 4221.0)