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Building strong foundations: Literacy and numeracy

- 5.1 Literacy and numeracy are the most important foundation skills upon which most further learning depends. Poor literacy and numeracy achievement is linked to: early school leaving; lower rates of entry to further education; higher rates and longer periods of unemployment; the type of work and earnings.¹ There are also strong correlations between poor literacy and social problems such as crime, rates of imprisonment and substance abuse.

Numeracy

- 5.2 Educators in other parts of the world often speak of mathematical literacy, however the Australian use of the term 'numeracy' places mathematics in the context of home or working life.

Numeracy is essentially the effective use of mathematics to meet the general demands of life at home, in paid work, and for participation in community and civic life. Thus numeracy is:

- distinct from literacy;
- more than number sense;
- not only school mathematics;
- and cross-curricular.²

1 see Lamb, S., *School Achievement and Initial Education and Labour Market Outcomes*, LSAY Research Report No. 4, ACER, July 1997.

2 Australian Association of Mathematics Teachers (AAMT) Inc. and Education Department of Western Australia. *Numeracy + Everyone's Business*. Report of the Numeracy Education Strategy Development Conference. Adelaide, (1997).

Gender differences in numeracy achievement

- 5.3 Nationally, assessments at Years 3 and 5 show few and very small differences in achievement in numeracy between girls and boys.³ Where there are slightly better results for boys in the 'number' strand, for example in Victoria and Queensland, this is matched by slightly better results for girls in 'chance and data'. In Year 5 there appears to be a wider spread for boys across performance levels.⁴
- 5.4 For junior secondary school students across Australia there is little difference in numeracy skills between males and females and there was little change in the average levels of attainment for boys and girls over the period 1975 to 1995. Boys' achievement in numeracy was marginally higher than girls' but the difference had not changed over the 20 year period. Over the same period, there had been a small improvement in the percentage of students attaining mastery in numeracy.⁵
- 5.5 In the OECD Programme for International Student Assessment, Australia was one of only six countries with no significant gender differences in mathematics achievement for 13 year olds. Australia was also one of only five countries with equivalent results for boys and girls in advanced mathematics at Year 12, although there was a gap in favour of males in Year 12 physics and in general mathematics and science tests for non-specialist students. However, many countries had gender differences up to twice as large as Australia.⁶
- 5.6 The overall picture is that in Australia significant performance differences in mathematics between boys and girls appear not to exist, as the differences found are small. Despite this evidence, the popular stereotype, that boys are better at mathematics than girls, persists⁷ and mathematics is widely considered to be a 'boys' subject'.

3 DEST, *Submission No. 117.2*, pp. 18 & 19.

4 Collins, C., Kenway, J., and McLeod, J., *Factors influencing the educational performance of males and females in school and their initial destinations after leaving school*, July, 2000, p. 49.

5 Marks, G. and Ainley, J., *Reading Comprehension and Numeracy among Junior Secondary School Students in Australia*, LSAY Report No. 3, ACER, 1997.

6 Lokan, J., Greenwood, L. and Cresswell, J., *15 – Up and Counting, Reading, Writing, Reasoning ... How literate are Australia's Students*, The PISA 2000 Survey of Students' Reasoning, Mathematical and Scientific Literacy Skills, ACER & OECD, 2001, p. 33.

7 see Doig, B., *Summing up: Australian numeracy performances, practices, programs and possibilities*. ACER, 2001, p. 9.

Effective numeracy teaching

- 5.7 Although the evidence does not identify a crisis in numeracy for either boys or girls, there is still a significant number of students who are not achieving to their potential.
- 5.8 Research on early numeracy teaching shows that effective practice requires:
- a clear focus on concepts and thinking;
 - an emphasis on valuing children's strategies; and
 - encouraging children to share their strategies and solutions.⁸
- 5.9 Professional support and training for teachers to encourage them to employ a wide range of teaching strategies is important. Allocating a regular time to numeracy and providing a structured program with explicit teaching are key features of most successful strategies.

Literacy

- 5.10 As discussed in Chapter 2, the research shows that, on average, boys do not perform as well as girls in each aspect of literacy, reading, writing, listening, viewing and speaking. The gender differences are greater in the expressive modes of literacy, writing and speaking, than they are in the receptive modes of reading, listening and viewing. Gender differences are greater for children from lower socio-economic groups.⁹ The links between early literacy achievement and post-school outcomes and the evidence on the relative literacy attainment of boys and girls have been considered in more detail with the significance of other measures of educational attainment in Chapter 2.
- 5.11 For some boys, being able to work on a computer may encourage them to engage with learning tasks or motivate them to spend more time or put more effort into literacy tasks.¹⁰ There is also evidence that, on average, boys are performing better than girls at information technology related

8 Doig, B., *Summing up: Australian numeracy performances, practices, programs and possibilities*. ACER, 2001, p. 14.

9 DETYA, *Submission No. 117*, pp. 5-6.

10 Mr Bobby Willetts, Executive Teacher, Griffith Public School, *Transcript of Evidence*, p. 1164.

tasks and that proportionately more boys are enrolling in this subject area in senior school.¹¹

- 5.12 There are obvious vocational benefits for the greater number of boys who do well in the information technology areas. However, the Committee does not believe that this discounts the importance of addressing under-achievement and the gender differentials in the underlying basic literacy skills of reading and writing. While the Committee did not receive specific evidence to support the view, it would not expect that the vocational benefits derived from skills in information technologies would be flowing to many boys with low literacy and numeracy achievement.

The importance of early literacy

- 5.13 The importance of developing strong foundation literacy and numeracy skills in the early years of schooling cannot be overstated. These foundation skills are the most reliable predictor of longer term educational outcomes and personal and economic wellbeing. Poor achievement in literacy and numeracy at 14 years of age has been clearly linked with early school leaving.¹² The association between literacy achievement in particular and early school leaving is stronger for boys than for girls.¹³ Poor literacy and numeracy achievement is also linked to: lower rates of entry to university and TAFE; higher rates and longer periods of unemployment; the type of work that is accessible; and, ultimately, earnings.¹⁴

...good literacy and numeracy skills work for young people at every major juncture: the transition to Year 12, progression to higher education, selection to TAFE...they also work for young people in the transition from school to employment in terms of providing access to a wider range of occupations. Poor skills on the other hand, limit choices at every major point. This includes the type of work young people can enter.¹⁵

11 Dr Julie McLeod, Lecturer, Faculty of Education, Deakin University, *Transcript of Evidence*, p. 154.

12 Marks, G. N. and Fleming, N., *Early School Leaving in Australia: Findings from the 1995 Year 9 LSAY Cohort*, LSAY Research Report No. 11, ACER, August 1999, p. 9, and see Lamb, S., *School Achievement and Initial Education and Labour Market Outcomes*, LSAY Research Report No. 4, ACER, July 1997, p. 3.

13 Lamb, S., *School Achievement and Initial Education and Labour Market Outcomes*, LSAY Research Report No. 4, ACER, July 1997, p. 8.

14 Lamb, S., *School Achievement and Initial Education and Labour Market Outcomes*, LSAY Research Report No. 4, ACER, July 1997, pp. 11, 14, 19, 25, 31 & 33.

15 Lamb, S., *School Achievement and Initial Education and Labour Market Outcomes*, LSAY Research Report No. 4, ACER, July 1997, p. 31.

- 5.14 Data published by the OECD in 2000 confirms that the association between poor literacy achievement and unemployment is very strong, particularly for early school leavers. For young people who have not completed upper secondary school, the probability of being unemployed is three to four times higher for those with low literacy skills compared to those at the middle levels of achievement. Those with low literacy skills are between 11 and 25 times more likely to be unemployed than early school leavers with high levels of literacy achievement.¹⁶ This chapter looks at the reasons for, and appropriate responses to, boys' lower average achievement levels.

Reasons for boys' lower literacy achievement

- 5.15 Boys' lower average level of literacy achievement is not a result of the absence of boys, or the over-representation of girls, at higher levels of achievement.¹⁷ Boys' lower average achievement is a function of the fact that a higher proportion of boys compared to girls are performing at middle to lower levels of achievement.
- 5.16 A number of factors have been advanced in evidence to the Committee to explain the different distributions of achievement between boys and girls: developmental differences; behavioural factors; genetic differences (in the sense that a higher proportion of boys have learning difficulties or cognitive or hearing impairments); a tendency for more boys than girls to favour the mathematical, logical, in preference to language-based modes of thinking; changes in pedagogy; and the 'feminisation' of primary teaching. Many submissions to the inquiry assigned the cause of boys' differential achievement narrowly and simplistically to only one or two of these possible explanations. The reality is far more complex.

Developmental factors

- 5.17 Developmental differences in language and social maturity between boys and girls start to emerge in early childhood with girls, on average, developing ahead of boys.¹⁸ Schools and teachers must work with students

16 OECD, *Literacy in the Information Age*, 2000, p. 167, see Curtain, R., *How Young People Are Faring 2001: Learning and Work and In Between*, Dusseldorp Skills Forum, 2001, p. 4.

17 see Professor Peter Hill, Deputy Dean, Centre for Applied Education Research, University of Melbourne, *Transcript of Evidence*, p. 508; and see Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, Australian Institute of Family Studies, p. 41.

18 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, Australian Institute of Family Studies, p. 25.

as they are when they come to school. Therefore, the Committee has not attempted to explore, or advance an opinion on, the relative importance of inherent natural factors (such as the influence of genes and hormones) over social factors (such as differences in the way boys and girls are raised) in explaining the developmental differences between boys and girls.

- 5.18 However, there are physiological developmental differences between boys and girls which have a bearing on learning. For example, laterality focus, which is necessary to be able to read from left to right¹⁹, the ability to represent shapes²⁰, and auditory processing capacity²¹ tend to develop later in boys.
- 5.19 The differential in favour of girls against the National Literacy Benchmarks is just one manifestation of the developmental differences. A longitudinal study on the links between temperament and emotional and behavioural development, by the Australian Institute of Family Studies (AIFS), and recent doctoral research²², confirm that boys are more likely than girls to experience difficulty adjusting to the first year of school.

...teachers reported boys had more difficulty adjusting to school. They showed poorer task orientation, were less socially competent, were more prone to hyper-activity and aggression, and some seemed less 'ready' for the demands of the classroom in the early years of school. Their ability to control or regulate their own behaviour was seen as somewhat behind that of girls.²³

Behavioural factors

- 5.20 The significance of the early literacy and school adjustment differentials between boys and girls is in the links both have to behavioural problems and school engagement later, particularly for boys. The AIFS Temperament Project found that the children who were reported to have early aggression problems and whose problems were still present at 9-10

19 Dr Annah Healy, Lecturer, Language and Literacy (Primary Education) QUT, *Transcript of Evidence*, p. 597.

20 Dr Annah Healy, Lecturer, Language and Literacy (Primary Education) QUT, *Transcript of Evidence*, p. 602.

21 Drs Ken and Katherine Rowe, *Auditory Processing Effects on Early Literacy and Behaviour*, Background paper on address to a Students with Disabilities Conference, Melbourne, August 2000, *Exhibit No. 36*, Appendix 3, pp. 2-3.

22 see Prior, M., Sanson, A., Smart, D., and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, Australian Institute of Family Studies; and Ms Kay Margetts, *Submission No. 145 and Transcript of Evidence*, p. 93.

23 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 25.

years of age (Grade 4) were more likely to be boys, more likely to get into trouble at school and more likely to have difficulties with learning. Of the children whose anti-social behaviour persisted into adolescence, most were boys and many had learning difficulties as well.²⁴

- 5.21 Research by Professor Peter Hill and Dr Ken Rowe also supports the conclusion that behaviour is strongly correlated to learning and gender, even at a level where attentiveness represents much less problematic behaviour than those studied in the Temperament Project.

Of the predictors of student *Literacy Achievement*, the most salient was students' attentiveness in the classroom. By far the major proportion of the variance in student *Attentiveness* was found to be at the student-level and the most influential predictor of *Attentiveness* was *Gender*, with female students being significantly more attentive than male students.²⁵

- 5.22 The AIFS Temperament Project included a number of subsidiary studies on learning progress and literacy. The first study, on reading and spelling in Grade 1, found that struggling readers:

...tended to be of lower intelligence than normally reading children (although still within the normal range) and that they were more likely to have a higher level of behaviour problems, especially attention deficits and hyperactivity. They were also children who had been difficult to manage during the pre-school years.²⁶

- 5.23 When reassessed in Grade 2, two-thirds of those children who were struggling readers in Grade 1 were still not reading at a level appropriate for their age. Those who had caught up were more likely than the others to have better phonological skills. Those who were still struggling tended to have weaker phonological skills and were also more likely to be inattentive and disruptive. The implications of this finding for teaching strategies are discussed below. Half the sample in this study were later included in a study of children in Grade 6 and 70 per cent of the children

24 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 27.

25 Hill and Rowe (1998); Drs Ken and Kathy Rowe, *Submission No. 111.1*, p. 7; and see *Exhibit No. 36*, pp. 1-2.

26 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 38.

who had been struggling readers in Grade 2 were found to be still reading at a below-average level.²⁷

5.24 In a second subsidiary study in the AIFS Temperament Project of children in Grade 2, 16 per cent of the sample (roughly 4 children in every classroom) were very much behind in their reading and were classified 'reading disabled' (RD) in the study. Slightly more than half of the RD children were boys while 40 per cent of the RD boys and 15 per cent of the RD girls also had behaviour problems. The behaviour problems were more likely to be hyperactivity, attention difficulties and conduct problems.²⁸

5.25 A third subsidiary study was able to conclude that the RD children with behaviour problems in Grade 2 had made significantly poorer progress by Grade 4 than the RD children without behaviour problems. It also found that of the children with behaviour problems who were reading well in Grade 2 almost half exhibited better classroom behaviour by Grade 4.²⁹

...the early histories of children with behavioural difficulties (many of whom also had [reading disabilities]), showed that they could be distinguished from non-problem children by a history of difficult temperament, and problems with behaviour as far back as toddlerhood...for some children, early behavioural difficulties lead them into school learning difficulties. Without some help in managing their behaviour, before they begin school, there is a risk of longer-term problems.³⁰

5.26 The evidence suggests that in some children poor behaviour and learning difficulties may be coincidental and, in others, one problem may lead to the other. For some children, behavioural difficulties lead to learning difficulties while for others the learning difficulties lead to behavioural problems.

From an anecdotal point of view with children in the hospital who come in with behavioural problems, as soon as their literacy gets

27 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 39.

28 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 40.

29 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, pp. 40-41; A 5th subsidiary study found "The best predictor of recovery for boys [to be reading at an appropriate level for age at Grade 6] was the absence of persistent behavioural problems.", p. 42.

30 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 41.

sorted out they will come in and suddenly they are okay, they are not a problem in school.³¹

- 5.27 In relation to children's behavioural difficulties and parenting styles the AIFS Temperament Project concluded that:

...parenting styles of low warmth, high use of punishment and low monitoring of the child's behaviour, were associated with externalising behaviours [aggression, oppositional behaviour, hyperactivity and attention problems], and with substance abuse.³²

- 5.28 The Australian Association of Social Workers submitted that poor parenting and/or domestic violence is often a factor when children develop behavioural problems.

There is some evidence that children from homes with domestic violence have attention difficulties. They may not actually have attention deficit disorder, but they have problems concentrating or problems with hyperactivity. Anxiety and depression are often conditions that exist alongside that sort of hyperactivity, as well.

Drug use and abuse has had an impact on parenting and therefore we are seeing behavioural problems in younger children as they enter school. It has implications for how we intervene early with those children...the first three years of life is really the crucial time for children's learning and development. Some of the children entering school come... from families in which there has been horrendous drug abuse and lack of attachment and domestic violence.³³

- 5.29 Early intervention to deal with behavioural problems in pre-school children, especially those related to attention, concentration and self-control, is essential. Appropriate early intervention will assist these children to adjust better to school and will help prevent behavioural problems contributing to the development of learning problems in the early years of schooling.

- 5.30 There is a need to raise community and parental awareness of the effect certain parenting styles may have on learning and behaviour and the correlation between behavioural problems and learning problems. Information should be developed for the child-care sector and for pre-

31 Dr Katherine Rowe, Paediatrician, *Transcript of Evidence*, p. 123.

32 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 53.

33 Mr Paul Wyles, Member, Australian Association of Social Workers, *Transcript of Evidence*, pp. 1076 & 1079.

school teachers and general practitioners to help them to assist parents of pre-school children with behavioural problems. Where these problems are substantial, the aim should be to encourage child-carers, teachers and doctors to refer the parents to appropriate services before the children start school. The emphasis, where possible, should be on developing consistent, appropriate parenting skills and behaviour management strategies for parents without resort to medication.³⁴

Recommendation 4

The Committee recommends that as part of a strategy to raise community and parental awareness of the effect certain parenting styles may have on learning and behaviour and the correlation between behavioural problems and learning difficulties; the relevant Ministers should:

- **review the available Australian qualitative and quantitative research on behaviour and learning;**
- **develop information for inclusion in a package for new parents on the effect of particular parenting styles on children's behaviour and learning; and**
- **develop an information package or packages, for General Practitioners, child-care workers, pre-school teachers and others in contact with parents of pre-schoolers, which includes a guide to services to help parents whose children have behaviour and attention problems.**

Hearing and auditory processing difficulties

5.31 Hearing difficulties and auditory processing problems have emerged in evidence from a wide range of sources as significant impediments to literacy learning for many children. While the significance of hearing difficulties is obvious they are not always detected early. Auditory processing problems are a more subtle and less widely understood factor. Auditory processing difficulties may exist in children who can hear well but who have difficulty processing what they do hear. These children will be able to recall less of what they have heard than other children. Typically, more boys than girls are affected.

³⁴ The Committee acknowledges the growing awareness of the importance of diet and nutrition and their potential to affect children's behaviour.

- 5.32 Hearing and auditory processing problems are often detected after children have been referred to paediatricians with disruptive, inattentive behaviours and learning difficulties.

When such children can hear well, it is recognised that they have difficulty in processing what they can hear. This ability to recall auditory information is typically measured by the length and complexity of a sentence and the number of pieces of information (e.g. digits) that are recalled accurately. Such ability increases rapidly between the ages of 3 and 7 years, and many parents and teachers intuitively adapt the length of sentences according to a child's age.³⁵

- 5.33 A child with a delay in the development of his or her auditory processing capability may appear 'not to listen' or appear to be 'unable to hear'. If no allowance for the problem is made by parents and teachers the result is that the child may fail to acquire important fundamental literacy skills.³⁶ The AIFS Temperament Project also found that auditory discrimination is one of the predictors of a child's reading ability.³⁷

- 5.34 A 1999 Victorian study³⁸ assessed a screening tool to help teachers identify students at school entry with auditory processing difficulties and to evaluate the effect of teacher training on children's achievement when appropriate strategies for auditory processing difficulties are used. Children with hearing difficulties, as opposed to auditory processing difficulties, were excluded from the study. The study identified a significant gender dimension to this teaching and learning issue.

Seven per cent of children at school entry had a digit span of 2 digits (or less) and a sentence length of less than 8 words. An additional 15% were considered 'at risk' of literacy under-achievement since they either had a digit span of 3 digits or a

35 Drs Ken and Katherine Rowe, *Auditory Processing Effects on Early Literacy and Behaviour*, Background paper on address to a Students with Disabilities Conference, Melbourne, August 2000, *Exhibit No. 36*, Appendix 3, pp. 1-2.

36 Drs Ken and Katherine Rowe, *Auditory Processing Effects on Early Literacy and Behaviour*, Background paper on address to a Students with Disabilities Conference, Melbourne, August 2000, *Exhibit No. 36*, Appendix 3, p. 2.

37 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 38.

38 Rowe, K.S., Pollard, J., Tan, L. and Rowe, K.J., (2000) *Auditory processing effects on early literacy and behaviour: Evidence for the value of auditory screening of children on school entry*, Paper, Second International Conference on Child and Adolescent Mental Health, Kuala Lumpur, Malaysia, 6-10 June 2000.

sentence length of 8 words (or less). Boys constituted 70% of these two at risk groups.³⁹

- 5.35 Information on gender differences in hearing from data gathered by otoacoustic emission tests on 3,000 Australians was presented by representatives of Australian Hearing.⁴⁰ An otoacoustic emission test “measures the reaction time of an ear; how quickly the ear can respond to a stream of sounds such as speech”.⁴¹ The data gathered from the tests show that, after the age of four, males have measurably less acute hearing than females. The measurable differences in hearing can be detected by the otoacoustic emission test before hearing damage becomes apparent to the individual and would be detectable on a conventional audiogram test.

The overwhelming fact ...is that from about the first decade of life the ears of boys are effectively older than the ears of girls. They process sounds more slowly, they provide less information to the brain to be analysed.⁴²

If you are trying to learn language, having difficulty processing the basic information is going to mean that there is less you can do with that information in the same time period than someone whose sound analysis is fast... For example, if you take a typical boy and a typical girl, we are suggesting that if the teacher is speaking normally the girl and the boy will be able to hear the first sentence but the boy may still be figuring out what was said when the second sentence comes along, whereas the girl will have taken it all in, thought about the mental connections and be ready for the next sentence.⁴³

- 5.36 This is both a health and an educational issue. The otoacoustic emission test results for teenagers and young adults, both males and females, reveal a much more rapid decline in hearing than in older people, principally as a consequence of the advent and widespread use of personal stereos from the late 1970s and early 1980s. However, more young males are doing more damage to their hearing than young females.⁴⁴

39 Drs Ken and Katherine Rowe, *Auditory Processing Effects on Early Literacy and Behaviour*, Background paper on address to a Students with Disabilities Conference, Melbourne, August 2000, *Exhibit No. 36*, Appendix 3, p. 3; and see Mr Peter Dicker, Psychologist, *Submission No. 64*, p. 1.

40 The National Acoustic Laboratories.

41 Dr Eric LePage, Australian Hearing, *Transcript of Evidence*, p. 416.

42 Dr Eric LePage, Australian Hearing, *Transcript of Evidence*, p. 416.

43 Dr Narelle Murray, Australian Hearing, *Transcript of Evidence*, p. 417.

44 Drs LePage and Murray, Australian Hearing, *Transcript of Evidence*, pp. 417-418.

There is a basic biological reason that does show up in other studies... but we are saying that environmental effects—the things that have long been regarded as preventable, namely noise—are a big factor. We are saying that, given our findings, it is not reasonable to expect that boys, on average, will absorb class teaching material as readily as girls.⁴⁵

- 5.37 Hearing damage is cumulative and irreversible. The relatively greater hearing damage that children and teenagers accumulate today compared to 20 years ago is likely to be one of the factors contributing to inattentiveness and disengagement, particularly for boys.
- 5.38 The otoacoustic emission test results also have implications for addressing social disadvantage. While the specific studies have not been done, correlations are apparent between the relative hearing damage and educational attainment of different groups of people. Research is required on the relationships between both hearing damage and the levels of educational attainment of Aboriginals, and hearing damage, educational attainment and crime.
- ...Prisoners [have] hearing scores, which are five times greater than the [normal] ageing effect for every 10 years [of age]. The male-female ratio is twice the ageing effect, being Aboriginal is four times the effect...⁴⁶
- 5.39 The Victorian research, reported by Drs Ken and Katherine Rowe, examined the ability of children (with apparently normal hearing) to listen to and recall information. The Australian Hearing data, reported by Drs LePage and Murray, deals with the amount of auditory information that the brain actually receives. The two reports are not concerned with precisely the same thing but both are credible, scientific and objective evidence that, on average, boys' capacity or ability to receive and process auditory information is less than that of girls.
- 5.40 A differential in auditory processing capacity already exists between boys and girls when they commence school. While some, or even most, of the boys may catch up with the girls developmentally (the auditory processing capacity) the boys, on average, are simultaneously accumulating more hearing damage (the auditory receiving capacity). Research is required on the cumulative effect of hearing damage on the development of language and literacy skills and the relative impact it has on males and females.

45 Dr Eric Le Page, Australian Hearing, *Transcript of Evidence*, p. 420.

46 Dr Eric Le Page, Australian Hearing, *Transcript of Evidence*, p. 420.

5.41 Practical classroom strategies which address auditory processing problems were trialed in the Victorian study referred to above.

Teachers in the 'trial' schools were provided with: (1) professional development regarding normal development of auditory processing, (2) training in the administration of the auditory screening protocols, and (3) practical classroom management and intervention techniques.⁴⁷

5.42 Specific training was provided in the following strategies:

- attract the child's attention;
- use short sentences ('chunked'), maintain eye contact and use visual cues;
- **pause** between sentences and, if repeating is required, restate simply, provide regular encouragement and improve self esteem;
- monitor the child (eg. if 'blank' look response, stop and begin instructing again; and
- establish hearing, listening and compliance routines.

5.43 The effect of this intervention in the trial schools, which amounted to one hour's professional development for each teacher, was that the progress in acquiring literacy skills by the boys tracked parallel to the progress of the girls. In the reference schools, the boys' progress in literacy was slower than the girls' and they were more inattentive.⁴⁸ The Victorian Department of Education, Employment and Training has implemented the findings from this study as a component of its *Early Years Literacy Program*.⁴⁹

47 Drs Ken and Katherine Rowe, *Auditory Processing Effects on Early Literacy and Behaviour*, Background paper on address to a Students with Disabilities Conference, Melbourne, August 2000, *Exhibit No. 36*, Appendix 3, p. 2.

48 Dr Katherine Rowe, Paediatrician, *Transcript of Evidence*, p. 118.

49 Drs Ken and Katherine Rowe, *Transcript of Evidence*, p. 118 and see <http://www.sofweb.vic.edu.au/eys/resources/audproc.htm>.

Recommendation 5

The Committee recommends that:

a) all State and Territory health authorities ensure that kindergarten children are fully tested for hearing and sight problems; and

b) the Commonwealth and State and Territory governments jointly fund the implementation of the strategies used in the Victorian study on auditory processing in primary schools throughout Australia.

Implementation should include:

- **professional development for all primary school teachers to raise awareness about the normal development of auditory processing in children;**
- **the provision of the relevant auditory screening tests and training to equip teachers to administer preliminary tests with referral to specialised support where needed; and**
- **professional development for teachers in practical classroom management and teaching strategies to address the needs of children with auditory processing difficulties.**

The importance of phonemic awareness and phonological skill

5.44 Phonemes are units of sound in language (eg. the sound of 'b' in the word 'bat') and phonological skill is the ability to recognise, recall and process sounds in language (eg. at the elementary level being able to recognise if two words sounded the same or different). Phonemic awareness is necessary to the development of phonological skills. Both are essential foundational literacy skills without which children will struggle to learn to read and spell.

5.45 The importance of phonemic awareness and phonological skills is supported by research and the observation of teachers. The Australian Temperament Project confirmed the importance of phonological skills in the development of reading and spelling skills in children.⁵⁰ Eagleby State School in Queensland has observed that the children from its pre-school, which targets pre-literacy skills in children, cope better in Year 1 than children from other day care centres.

50 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, see pp. 38-42; and see *Preventing and Overcoming Reading Failure: Recent Research and Proven Programs*, Hempenstall, K. and Ryan, P., 2000, Exhibit No. 58.

The children are introduced to books [and] the language that the teachers use in the classroom because they are not familiar with that sort of language at home... We do a lot of phonemic awareness also, in the sense that the children... are taught to be aware of the fact that words are made of sounds and they are made aware of the types of sounds. We teach them syllables, onset and rime and rhyming words, what is a word, spaces between words—all those basic things that I think a lot of children will have when they come to you. But we have identified that a lot of our children don't have these things.⁵¹

- 5.46 Those pre-school children who develop strong phonemic awareness and other pre-literacy and pre-numeracy skills do so through activities with their parents, grandparents, other adults and older children. Talking, singing, listening and reading to children, talking to children about the pictures in books, encouraging children to draw, count, measure things and make up rhymes are some of the many ways parents help their children develop phonemic awareness and other foundational literacy and numeracy skills.
- 5.47 For some children, and for a greater proportion of children from less affluent backgrounds, the foundation literacy and numeracy skills are not as well developed as they could be when the children start school. It has been argued that it is significant for the development of pre-literacy skills in boys that the ways adults talk to and interact with infant girls are more conducive to the development of language skills than are the ways that they tend to interact with infant boys.⁵²
- 5.48 In extreme cases, some five year olds commence school knowing little of books and with extremely under-developed oral language skills. The community of Parkes in NSW has responded by providing all new mothers with a book, *Toby's Troubles*, "about a baby whose mother reads to him whenever he is unsettled or in strife".⁵³ Other books in the locally produced series are provided at other times such as immunisation with the idea that they will raise the parents' awareness of the benefits of reading to their children.

51 Ms Patricia Wilson, Acting Deputy Principal, Eagleby State School, *Transcript of Evidence*, p. 532; The 'onset' is the first consonant or cluster of consonants in a syllable and the 'rime' is the remainder of the syllable, eg in a one syllable word such as 'train', 'tr' is the onset and 'ain' is the rime.

52 Professor Erica McWilliam, QUT, *Transcript of Evidence*, p. 594; and see Dr Annah Healy, Lecturer, Language and Literacy (Primary Education) QUT, *Transcript of Evidence*, p. 599.

53 see "City where the kids can talk the talk before they walk the walk", *The Sydney Morning Herald*, 11 June 2002, pp. 1&4.

- 5.49 Children with under-developed pre-literacy skills are at an immediate disadvantage compared to children who start school with strong language skills, and an awareness of books, print, letters and numbers. Parents should be encouraged to do those things with their children that will enhance learning but the provision of good quality pre-literacy programs in pre-schools will help children whose parents cannot or do not provide such encouragement to learn in early childhood.

What I would really love to be able to do would be to work with preschools where they get [children] between three and five, which is when they are really ready, and to put greater emphasis in those preschools on the structures of oral language to get those in place and [children's] concepts about print. It would take very little to get our preschools much more effective in that area and to ensure that the most needy of our children got that preschool education... in our most needy schools it is taking an additional six to nine months to get them up to the level where we expect kids to be.⁵⁴

- 5.50 It is so important to encourage the development of phonemic awareness and phonological skills in children before they get to school that governments should be more active in promoting actions parents, child carers and pre-schools can take to help children develop these skills. The program being trialed in Parkes where the parents of newborns are given explicit encouragement to read and to talk to their children is an instructive approach.

54 Professor Peter Hill, Deputy Dean, Centre for Applied Education Research, University of Melbourne, *Transcript of Evidence*, p. 520.

Recommendation 6

The Committee recommends that:

a) the Commonwealth, in conjunction with the State and Territory governments, coordinate a public information program comprised of the following elements:

- **information for all new parents on the importance of developing early language skills and the games and strategies which parents and child carers can use to develop these skills, with follow-up at key stages in their pre-school years;**
- **basic information on the way that adults traditionally have interacted with boys and girls stressing the importance to parents of developing pre-literacy and pre-numeracy skills in both boys and girls while recognising their differences; and**
- **a periodic, low intensity, media campaign to raise and maintain community awareness about the need to talk and play with babies and young children in ways that develop their pre-literacy and numeracy skills.**

b) the Commonwealth, with the State and Territory governments, work with pre-schools and childcare centres to ensure that there is adequate awareness of, and attention to, pre-literacy and pre-numeracy skill development in boys as well as girls.

Phonics and the acquisition of literacy skills

5.51 Phonics refers to the relationships between the component sounds of a language (phonemes) and its written symbols (orthography). Methods of literacy instruction vary in the emphasis they place on the importance and explicit teaching of phonics and a controversy continues between the proponents of phonics-based approaches to teaching literacy and 'whole language'. 'Whole language' is often misrepresented as a phonics free approach to teaching literacy and is commonly associated with 'whole word recognition' or 'Look-Say' which emphasises the memorisation of words by sight.

5.52 Integrated models which include a strong emphasis on phonics instruction with relevant and meaningful reading appear to be the most successful, especially for children with reading difficulties.

Current research findings lead us to believe that a heavy emphasis on systematic phonics instruction combined with the reading of natural language texts is the most effective and efficient way to

approach both initial reading instruction for the majority of learners and remedial instruction for low-progress readers. This view of reading, which acknowledges the simultaneous integration of orthographic, phonemic, syntactic and semantic cues, is referred to as an interactive model. In this model, learners are directly and explicitly taught to apply whole word recognition skills and phonic knowledge skills to decode words. These skills are then applied and practised to develop automaticity through the reading of a variety of meaningful, connected texts at an appropriate level.⁵⁵

- 5.53 In this context whole word recognition “refers to the ability to identify familiar words without the need to analyse their component parts”⁵⁶ and does not imply that phonic word attack skills are unnecessary.
- 5.54 Some manifestations of the ‘whole language’ approach to teaching literacy emphasise the use of sentence context as the primary method for identifying unfamiliar words and under-emphasise the development of phonic word attack skills. This latter approach disadvantages the significant proportion of struggling readers, mostly boys, who are less able to infer spelling/sound patterns if they are not explicitly taught. Concern about under-emphasising or ignoring the importance of phonic word attack skills was the subject of a number of submissions to the inquiry from parents and teachers.⁵⁷

Some low progress readers with poor phonic word attack skills can and do rely on other strategies to read text which are less efficient but, none the less, effective to some degree. Some readers may even be able to reach a functional level of reading while maintaining relatively poor phonic word attack skills, by acquiring a very large lexicon of sight words, for example. *As a general teaching strategy for reading, however, this is not to be recommended - it is far too risky.*⁵⁸

- 5.55 A former primary teacher with many years experience offered the following observations which are consistent with recent research.

55 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 2.

56 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 3.

57 see Mrs G. Stanbridge, *Submission No. 37*; Mr Don Trent and Ms Jennifer Cooper, *Submission No. 77*; Mr G. A. Truslove, *Submission No. 177*; Ms Elizabeth Clarke, *Submission No. 182*; Ms M. Storey, *Submission No. 194*.

58 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 4.

Spoken words (abstracts) are converted to print through a code, the symbols of which are also abstracts. Unlike the learning of a number, which is also represented by an abstract, the teaching of reading cannot proceed from the concrete to the abstract. The brain must convert one abstract into another abstract form...

The assumption that a child will mentally 'photograph' whole words and be able to read them is fallacious, and the belief that a child will read simply as a natural progression from speaking the language and because he/she sees print constantly is childish simplification. Knowledge of the code is the essential key to reading, for it allows the child to focus on detail – pal or pat? dear or clear? modern or modem? Children learning to look and say whole words are only getting an impression of reading.⁵⁹

- 5.56 It is clear that phonological skills are important in learning to read and to spell. Some children, whose earlier experiences have not adequately developed phonological skills, will require more explicit teaching of phonics or sound/letter relationships than others.

This phoneme awareness may more readily be invoked in children whose earlier experiences have included a focus on the structure of the spoken word, albeit in larger units such as rhymes, syllables, onset and rimes. Some children do not develop this awareness unaided and without assistance may remain...reliant on memory of the letter landscapes, or contextual guessing strategies. Such readers are doomed as the demands of a rapidly increasing visual vocabulary become overwhelming in middle to upper primary school...⁶⁰

Systematic phonics for remedial instruction

- 5.57 The Macquarie University Special Education Centre in Sydney has developed a very effective, research-based, remedial literacy program called MULTILIT (Making Up Lost Time In Literacy). MULTILIT provides intensive, systematic, reading instruction which focuses on phonic word attack skills, sight word recognition (of the most frequently occurring words in print), and the practice (and tutoring) of these skills through

59 Ms Elizabeth Clarke, *Submission No. 182.2*, p. 1.

60 *Preventing and Overcoming Reading Failure: Recent Research and Proven Programs*, Hempenstall, K. and Ryan, P., 2000, *Exhibit No. 58*, p. 4; and see Wheldall, K., and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 4, "The primary factor preventing the vast majority of low-progress readers from improving their reading performance is their poor word decoding skills. They are unable to match letters with their corresponding sounds to decode words. In other words, their phonic word attack skills are poor."

reading natural language in text appropriate for the student's age and reading level.⁶¹

- 5.58 Other important features of MULTILIT include a non-categorical approach to instruction (pedagogy is not determined by the nature of the reading disability or delay but after an appraisal of the student's current level of functioning in literacy) and Positive Teaching, which accentuates the positive rather than reprimanding inappropriate behaviour. MULTILIT also includes strategies for improving reading accuracy and comprehension which have proven effective even when used for Year 7 and 8 students by trained Year 11 and Year 12 peer tutors.⁶²
- 5.59 MULTILIT is the instructional method used by the *Schoolwise* program at the Exodus Foundation, which takes struggling Year 6 and Year 7 students for half a day in the mornings for two terms. The students return to their schools in the afternoons. On average, the students selected for *Schoolwise* were about four years behind in their reading and related skills when they commenced the program.⁶³

It is very positive teaching. The strategies are designed by Macquarie University. The way we work it is that we employ Macquarie trained teachers to do the teaching and we have a team of family therapists. We do all the caring and they do the teaching.⁶⁴

We had one child going 'Oh, it is the black stuff you read.' ... The way the program works is that they are measured as to where they are at, and they are given a task which is slightly above where they are at, but they can achieve it. Then they get hooked on achieving. To me it is just remarkable. We have seen the most remarkable changes, just as kids begin to feel that they can actually cope.⁶⁵

- 5.60 In less than five months on the program the *Schoolwise* students made average gains of 15 months in reading accuracy, 11 months in reading comprehension, and 14 months in spelling. This is six times the rate of progress that these students were likely to have made without the

61 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 4.

62 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, pp. 5-6 & 34-35.

63 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 24.

64 Rev. Bill Crews, *Transcript of Evidence*, p. 480.

65 Rev. Bill Crews, *Transcript of Evidence*, p. 481.

MULTILIT intervention.⁶⁶ There were also significant corresponding shifts in students' emotional wellbeing.

One of the things they get measured for is depression. On the first intake of kids we took years ago, on a Zeligman scale, I think it was, where 24 is profoundly and suicidally depressed, the average of the kids we got was 23. Just teaching them to read dropped the average from 23 to 15, with a lot of them not being depressed at all.⁶⁷

- 5.61 The *Schoolwise*/MULTILIT success has been replicated in other contexts, including primary schools, for children covering the age range from Year 2 to Year 7. For the vast majority of students the gains are maintained 6 to 12 months after the two term intervention ceases. However, further progress without continued intervention is, for most, less than normal while a small proportion lose some of their gains.⁶⁸ The latter group would clearly benefit from continued MULTILIT type intervention and support.

...the often heard view that remedial instruction for students beyond Year 2 is ineffective may have *been* true, but this is a criticism of the ineffectiveness of past programs, not a necessary truth. We can rehabilitate older low-progress readers... with effective programs based on contemporary, empirically validated best practice if we have the will and the resources to do so.⁶⁹

- 5.62 The knowledge and practical instructional techniques developed in MULTILIT by the researchers at Macquarie University should inform and enhance initial and remedial literacy instruction throughout Australia and form the core of remedial reading programs in primary and high schools.

Phonics and Reading Recovery

- 5.63 Reading Recovery is one of the mainstays of Australia's early intervention efforts for struggling readers and is limited to young children in Year 1. It targets the poorest 10 to 20 per cent of readers in Grade 1, of whom two-thirds are boys, for one-on-one tutoring. Reading Recovery does teach phonics but it does not always have the 'heavy emphasis on systematic

66 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, pp. 24-25.

67 Rev. Bill Crews, *Transcript of Evidence*, p. 481; and see Wheldall, K., and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, pp. 32-33.

68 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 26.

69 Wheldall, K. and Beaman, R., *An Evaluation of MULTILIT: Making up lost time in literacy* — Executive Summary, Macquarie University Special Education Centre, 1999, p. 30.

phonics instruction' which research indicates is the most effective method of initial and remedial instruction.

- 5.64 Research commissioned by the New Zealand Ministry of Education found that, compared to normally developing children, children selected for Reading Recovery showed significant deficiencies in phonological processing skills prior to entry into the program. Alarming, the study also found clearly that participation in Reading Recovery did not eliminate the deficiencies in phonological processing and failed to bring these children up to average levels of reading performance.⁷⁰

...those children who made some modest gains in reading performance after Reading Recovery had significantly better phonological processing skills than the children who made minimal gains.⁷¹

- 5.65 Other research has concluded that Reading Recovery is more effective when it is augmented by more intensive and explicit instruction in phonological processing skills.⁷²

Recommendation 7

The Committee recommends that Commonwealth-funded literacy programs should be required to adopt an integrated approach which includes a strong element of explicit, intensive, systematic phonics instruction.

When programs such as Reading Recovery are used they should be augmented by explicit, intensive phonics instruction as part of regular classroom teaching.

Phonics approaches in schools

- 5.66 The weight of the research supporting the effectiveness of teaching phonics explicitly is supported by the observations of teachers who adopt these methods. For example, the Spalding Method (an American package)

70 Chapman, J.W., Tunmer, W.E. and Prochnow, J.E., "Does Success in the Reading Recovery Program Depend on Developing Proficiency in Phonological Processing Skills? A Longitudinal Study in a Whole Language Context", *Scientific Studies in Reading*, No. 5, (2001), p. 158; This study also confirmed the correlation between poor literacy progress and behavioural problems, see p. 167.

71 Chapman, J.W., Tunmer, W.E. and Prochnow, J.E., "Does Success in the Reading Recovery Program Depend on Developing Proficiency in Phonological Processing Skills? A Longitudinal Study in a Whole Language Context", *Scientific Studies in Reading*, No. 5, (2001), p. 171.

72 see Iversen, S.A. and Tunmer, W.E., "Phonological Processing Skill and the Reading Recovery Program", *Journal of Educational Psychology*, No. 85, 1993.

is one of a number of packaged phonics systems for teaching literacy being used in Australia. The Committee visited three schools which use Spalding, two public schools on the outskirts of Hobart and an independent boys' school in Eastern Melbourne, as well as another independent school in Brisbane which uses another very structured phonics-based approach for remedial instruction.

- 5.67 The independent schools which have adopted explicit phonics instruction tend to relate the decision to teach phonics to boys' general preference for structured, explicit activity-based learning.

We have found that boys particularly respond to this kind of structured learning... and to providing them with the means for logical thinking. Through providing them with rules and teaching them a code as we do, they are able to apply a bit of logical thinking and work it out for themselves.⁷³

Spalding's highly structured, step-by-step, research based approach seems particularly suited to boys way of learning.⁷⁴

[Letterland and Spalding] have a very strong phonemic or phonological basis, which we know from the research is absolutely necessary. The methods, particularly the Spalding method, utilise what is known as direct instruction... The essence of the approach is that nothing is left to chance. That is the problem half the time these days. Nothing is left to chance. No assumptions are made. Children are given explicit instructions, clear goals, small steps, and lots of practice and repetition, all of which ensures a high level of success.⁷⁵

- 5.68 The Tasmanian Department of Education is making Spalding available as one of a number of strategies and programs schools may use as part of its effort to improve the literacy attainment of the State's lowest achievers. The Committee visited two public schools on the northern outskirts of Hobart which are using Spalding and was struck by the passionate enthusiasm of the teachers for the method and what it enabled them to achieve with their students.

Basically, Spalding has provided a key element to our whole school literacy plan—it is one element. It really looks at teachers being able to focus on teaching children all the elements that make

73 Mr Gavin Swallow, Senior Teacher Literacy, Cannon Hill Anglican College, *Transcript of Evidence*, p. 1240.

74 Mr Andrew Mullins, Headmaster, Redfield College, *Submission No. 80*, p. 26.

75 Mrs Lynette Henshall, Vice Principal, Southwood Boys Grammar, Tintern Schools, *Transcript of Evidence*, p. 221.

up language and bringing it all together for them. For our students, we have seen really good learning outcomes from that work. It allows teachers to be explicit and it ensures that children are able to build on their learning step-by-step through scaffolding on what they already know, challenging them and taking it on to the next level.⁷⁶

I have been at Bridgewater for nearly six years so I have seen a really huge change. I have seen both teaching practices in the time that I have been there. When I first started at Bridgewater, if we were asking the children to do some writing of their own, narrative writing, the comment would be, 'I'm not doing that,' or they would produce about a quarter of a page of writing and say, 'That's it; no more.' The change in the children has been incredible. They see themselves now as writers. They are really willing to join in, to write, and they are just writing so much more and enjoying what they are doing. It is just incredible.⁷⁷

The reason I did the Spalding training was because I worked with the children at Bridgewater in my first year there as a support teacher, and I made no difference—and I mean none—and I could not have worked harder, but I did not have the right method. I tried everything that I had been taught and picked up as a teacher. But from the beginning of the year to the end of the year I made no difference. Then across my desk came this invitation to do a course that involved phonics and I thought, 'I will try this because everything else I have used has failed.' So I did that course and came back and thought my kids are not going to understand this, it is too hard... but they did. If you break it down into the parts, and you build it up methodically, you do stacks of repetitions, stacks of practice until they get accurate, then you move on. Yes, at the end of the year I had made a difference when I had not the year before. Now some of the boys are keeping pace chronologically. They have a lot of years to catch up. But some of those children—not all of them in my group—are starting to keep pace chronologically. In other words, this year they will have gone a year ahead in their spelling and reading, and they never did that before.⁷⁸

76 Mrs Lynne James, Principal, Herdsmans Cove Primary School, Hobart, *Transcript of Evidence*, p. 1086.

77 Mrs Della Pyke, Teacher, Bridgewater Primary School, *Transcript of Evidence*, p. 1088.

78 Mrs Susie Eade, Teacher, Inclusion Students, Literacy Support, Bridgewater Primary School, Hobart, *Transcript of Evidence*, p. 1091.

- 5.69 Teachers at the two schools also remarked on the success of Spalding instructional methods at keeping boys on task and motivating them to achieve.

[Boys] do not seem to be as good with communication as girls as they are developing, and... perhaps Spalding's strength is the fact that it almost says to boys, 'Here is a formula, and this is how you apply it.' So it is, for them, 'All right; I can actually take this. It does not have to be intuitive as there is structure to our language. If I learn these rules and I apply it this way, therefore I can do it,' and I do not think we have done that with our language before with boys. We do it in maths, but I do not think we do it in literacy, and Spalding does give you that sort of structure.⁷⁹

I have also found that it is often the boys who are struggling in the English area. What I have noticed is that a lot of the problem seems to be with actually engaging their attention. Their behaviour problems stem from their concentration. I think boys like to be actively engaged in things, and the Spalding method, because it provides a multi-sensory approach where they are listening, saying and doing constantly, focuses their attention so that they do not have the opportunity to wander around and get bored and frustrated because they are not learning. For me, that is where it has really made a difference: with focusing the boys.⁸⁰

The difference we see in the boys is the behaviour. Unfortunately lots of the behaviour problems are from boys. I have two of the most difficult kids in the school, and we just don't have those behaviour problems from them during English time.⁸¹

- 5.70 The research supporting the more explicit teaching of phonics, especially in remedial literacy instruction, does not appear to be receiving sufficient attention by most education departments. There is a view that explicit phonics instruction and encouraging children to develop a love of reading and literature are mutually exclusive.

There is still an argument—some people are pro Spalding, some people are pro language. I believe that the two can blend quite well and I do not like the argument that some people are on one

79 Mrs Susie Eade, Teacher, Inclusion Students, Literacy Support, Bridgewater Primary School, Hobart, *Transcript of Evidence*, p. 1091.

80 Ms Alison Bailey, Teacher, Herdsmans Cove Primary School, Hobart, *Transcript of Evidence*, p. 1091.

81 Mrs Della Pyke, Teacher, Literacy Support, Bridgewater Primary School, Hobart, *Transcript of Evidence*, p. 1091.

side of the fence and some are on the other. You can do both really well. You can have wonderful whole language activities where the children are being really creative and writing freely, but they need the Spalding component first. If you can't write a sentence you can't write a story.⁸²

- 5.71 Although the research appears to have already answered the question the debate occurring in some schools is replicated at all levels in education.

The fact that Tasmania has picked up some of these commodity products...in relation to teaching literacy has been severely frowned upon by a high proportion of the literacy fraternity, both in our own state and in other states. It is certainly not universally accepted. It is criticised for dumbing down literacy teaching and, for some people, reducing literacy to simply teaching children to read and write... that is absolutely not true at all. We are trying to ensure that all children have foundational skills so that they can move on to the level of critical literacy, enjoying literature and participating in all of those very rich and wide definitions of literacy that we would all want to see. But we have to accept the fact that there are some children who are simply not going to get to that point without very explicit and very structured teaching. That is still an unpopular view amongst many people... At an official level we have been fairly successful in getting that approach accepted into a lot more schools than would have been the case five years ago, but I would not want to give the impression that it is universally agreed to—it certainly is not.⁸³

- 5.72 It is not Spalding that the Committee is promoting but the elements of the literacy programs it has observed in a number of schools which are contributing to their success in literacy. In both the Tasmanian schools Spalding was one element, albeit a major element, of a whole school approach to raise teaching and learning expectations and performance. What Spalding and other similar approaches offer is that they are multi-sensory (see, hear, say, write), they are sequential and structured with clear teaching and learning objectives that are readily understood by teachers **and students**, they explicitly teach phonic word attack skills and they encourage children to verbalise their thinking. It must be emphasised that while intensive, explicit teaching in phonics is considered a

82 Mrs Della Pyke, Teacher, Bridgewater Primary School, *Transcript of Evidence*, p. 1089.

83 Ms Alison Jacob, Deputy Secretary, Department of Education, Tasmania, *Transcript of Evidence*, p. 1103.

fundamental and essential ingredient, it is not sufficient on its own and needs to be part of a holistic, integrated approach to literacy.

Recommendation 8

The Committee recommends that Commonwealth, State and Territory education authorities ensure that teacher education places much greater emphasis on the pedagogy of teaching literacy and numeracy. Further, pre-service training in teaching literacy should involve an integrated approach which includes explicit, intensive, structured phonics as an essential element in early and remedial literacy instruction.

Recommendation 9

The Committee recommends that Commonwealth, State and Territory funding for teachers' professional development be increased on a dollar for dollar basis and that it be directed towards a greater focus on literacy and on early diagnosis and intervention to assist children at risk. This should involve developing skills in intensive phonics instruction as part of an integrated approach to teaching literacy.

Reflecting on teaching practice

- 5.73 In both of the Tasmanian schools, and the other primary schools with effective literacy programs visited, a whole of school strategy is in place and teachers have opportunities to review, discuss and reflect on their own practice. For example: Bridgewater Primary School, Tasmania, has monthly team planning sessions and the implementation of Spalding included training, modelling and mentoring⁸⁴; at Eagleby State School, Qld, mentoring and the lesson planning structure involves all teachers in supporting each other⁸⁵; at Roseville Public School, NSW, a non-teaching Deputy Principal and additional support funded by the P&C coordinate a whole school approach to identifying and addressing student needs in learning and social development⁸⁶, and Broadmeadows Primary School, SA, has a buddy system which requires teachers to examine and reflect on their practice as part of their ongoing professional development.⁸⁷
- 5.74 The importance of providing teachers an opportunity to reflect on their own teaching practice to create a continuous improvement loop is crucial.

84 *Transcript of Evidence*, p. 1093 & 1098.

85 *Transcript of Evidence*, pp. 532 & 536.

86 *Transcript of Evidence*, pp. 673-5.

87 *Transcript of Evidence*, p. 752.

A really good teacher can be a coordinator, coach and mentor to other teachers and improve their literacy teaching. In the average primary school, they need to have one teacher who can do that in the early years and they have to work in the morning because that is when they do their literacy block... The only way you will improve teaching is through coaching and mentoring... you can talk to teachers until you are blue in the face but, if you want to change them, you have to go into their classroom while they are teaching and work alongside them, coaching and mentoring them.⁸⁸

- 5.75 In Victoria, the implementation of the professional development package to raise teachers' awareness of auditory processing difficulties in children included additional teacher support in each primary school allocated on a per capita basis. The role of this additional teacher is to be a literacy coordinator and coach, model and mentor to the other teachers to ensure that professional development in literacy strategies becomes embedded in teacher practice. At the same time Victoria also funded a Reading Recovery teacher to provide Reading Recovery for 20 per cent of the Year 1 cohort in each school with an adjustment according to need. The total cost to Victoria of both initiatives was approximately \$50 million.⁸⁹
- 5.76 Victorian primary schools represent about 25 per cent of all Australian primary schools, therefore the cost to implement both initiatives nationally if neither were already occurring would be approximately \$200 million. However, elements already exist in other states and territories. In conjunction with the teacher professional development recommended above and a greater emphasis on systematic phonics instruction, the Committee believes the universal provision of a literacy coordinator and phonics enhanced Reading Recovery or alternative intensive assistance program in Australian primary schools would significantly improve the literacy achievement of under-achieving Australian children.

88 Professor Peter Hill, Deputy Dean, Centre for Applied Education Research, University of Melbourne, *Transcript of Evidence*, p. 515.

89 Professor Peter Hill, Deputy Dean, Centre for Applied Education Research, University of Melbourne, *Transcript of Evidence*, p. 515.

Recommendation 10

The Committee recommends that the Commonwealth in conjunction with the States and Territories, ensure funding for the provision of a Literacy Coordinator and an early intervention intensive literacy teacher in every Australian primary school, the proportion of a full-time equivalent load depending on the size of the school and the measured level of literacy need.

Post-elementary literacy support

- 5.77 Most of the effort to improve literacy outcomes has been directed to elementary and early primary education. While this is entirely appropriate the Committee is concerned about the relative lack of targeted literacy interventions beyond Year 1 and the fact that there are a significant number of high school students whose literacy skills are not up to the increasing verbal reasoning and literacy demands of the secondary curriculum. The more intensive literacy demands of the secondary curriculum were considered in more detail in Chapter 2.
- 5.78 The research at Macquarie University (*see above*) has proven that later interventions can work with young people who have not acquired adequate literacy skills by Years 7 and 8. While for some young people, the support may need to be offered outside their normal school environment to help break negative patterns of expectations and behaviours.

We have had lots of fights with departments, basically because they do not like the idea of kids being taken out of the schools, 'fixed up' and brought back in. They would like it all to happen within the school system... We have found that with some kids it just cannot. You really need to take them out into a new environment where there is a different attitude shown toward them, because often what the environment decides a kid is, is what that kid becomes. If they go into a different environment that is positive, they will respond.⁹⁰

- 5.79 There are other students with less extreme requirements for support but who do need further support to cope with the literacy demands of secondary school. Unfortunately, the subject focus of most secondary school organisations hinders the development of school cultures where all

⁹⁰ Rev. Bill Crews, *Transcript of Evidence*, p. 482.

teachers feel a responsibility for the development of students' operational literacy, verbal reasoning and written communication skills.

...in the schools that I have taught in [literacy across the curriculum] has been rhetoric. Some people are very committed to that ideal, but more often I hear comments like, 'This kid can't write an essay, what are you blokes doing in English?' I hear that far more than, 'In maths or science I have a responsibility to teach the metalanguage of my subject.'⁹¹

- 5.80 It is to the social, educational and economic advantage of all students for education to develop higher order language skills across all subject areas. As indicated in Chapter 2, the increasing literacy demands of the senior curriculum do contribute to the under-achievement of some boys. Further, these are skills that most employers will expect students to have. The first requirement is to put in place post-elementary intensive, systematic, reading and literacy support programs for those students who need them. The second requirement is for pre-service and in-service teacher education to support secondary teachers across all subject areas to further develop students' subject specific and general operational literacy, verbal reasoning and communication skills in their classroom teaching.
- 5.81 The Commonwealth already provides funds intended to support disadvantaged middle school students under the Literacy and Numeracy Program. It is the Committee's view that the Commonwealth needs to ensure this money is effectively used to assist students with needs identified by the Literacy Benchmark Tests.

Recommendation 11

The Committee recommends that the Commonwealth ensure that existing funding under the Literacy and Numeracy program to support students in the middle years is used effectively by the States and Territories to provide intensive literacy support programs for disadvantaged students whose need for them is identified by the Literacy Benchmark Tests.

91 Ms Frankie Maclean, Assistant Principal, Palmerston High School, *Transcript of Evidence*, p. 1313.

Recommendation 12

The Committee recommends that teacher pre-service and professional development programs assist teachers with practical strategies to develop secondary students' operational literacy and communication skills across all areas of the curriculum.

Class sizes

- 5.82 The advantages to students of smaller class sizes is generally accepted and the NSW Teachers Federation included a call for smaller class sizes in its submission to the inquiry.⁹² The first report of the Inquiry into the Provision of Public Education in NSW, Chaired by Professor Tony Vinson, has recommended a phased reduction in NSW class sizes to 20 students or less for Years K to 2, commencing with disadvantaged schools.⁹³ In its 2002-2003 budget the ACT Government announced the inclusion of Year 3 in an existing program to reduce ACT class sizes to a maximum of 21 students for Years K to 2 by 2004.⁹⁴ In its 2002-2003 budget, the Victorian Government reaffirmed an earlier commitment to reduce the average class size in Years Prep to 2 to 21 students by 2003.⁹⁵
- 5.83 The clearest and most comprehensive evidence of the benefits of reduced class sizes was provided by Tennessee's Project STAR (Student/Teacher Achievement Ratio). Project STAR was a controlled scientific experiment in which students entering Kindergarten in 1985 were assigned at random to a small class (13-17 students), a regular class (22-26 students) or a regular class with a full-time teacher's aid. The experiment ran over 4 years, from K to Year 3, involved over 6,000 students in 329 classrooms at 79 schools which had been controlled for a wide range of between-school differences. Students remained in the same type of class for the four year duration of the experiment and their achievement was comprehensively tested at regular intervals. All students returned to normal classes in Year 4 and were followed up over subsequent years.⁹⁶
- 5.84 Tennessee's Project STAR established that students in the small classes performed better on all achievement measures in all subjects than the

92 NSW Teachers Federation, *Submission No. 148*, p. 7.

93 *Inquiry Into the Provision of Public Education in NSW*, First Report, May 2002, p. 85.

94 ACT Budget Paper No. 2, 2002-2003, p. 15, and see, Mr James Colbourne, Executive Director, School Education Division, ACT Department of Education and Community Services, *Transcript of Evidence*, p. 1328.

95 2002-2003 Victorian Budget Statement, p. 70.

96 Finn, J.D. and Achilles, C.M., "Tennessee's Class Size Study: Findings, Implications, Misconceptions", *Educational Evaluation and Policy Analysis*, 1999, Vol. 21, No. 2, pp. 97-98.

students in the regular sized classes. The presence of a teacher's aid in regular sized classes did not result in significant differences in student achievement compared to regular size classes without a teacher's aid. The small class advantage was the same for boys and girls but the benefits were substantially greater for minority students and students attending inner-city schools (at risk students). The small class advantage remained for all subjects in subsequent years through to Grade 7, long after the students had returned to regular classes in Grade 4.⁹⁷ Further analysis of the STAR data confirmed that the benefit accruing to students of being in a small class in the early years was greatest for students who entered small classes early and spent the most years in small classes. Students who had entered small classes in Kindergarten and remained in small classes for the maximum 4 years through to the end of Grade 3 were at Grade 8, on average, almost a full school year ahead of children who had been in regular classes through those years.⁹⁸

- 5.85 The advantage of small classes accrues through the positive effect that a small class has on students' behaviour and engagement with learning, positive behaviours which persisted into the later grades when students were placed in regular classes. This finding is consistent with the Australian Temperament Project conclusion that early negative behaviours in children tend to persist and that these children are more likely to have learning difficulties.⁹⁹

Small class sizes are academically superior not because they encourage new approaches to instruction but because teachers can engage in more (perhaps even *enough*) of the basic strategies they have been using all along. More profound changes occur in students' behaviour. The small-class setting promotes students' participation in learning, including students who would be unwilling to participate if they were part of larger class...

In a small class, every student is on the firing line. It is difficult or impossible to withdraw from teaching-learning interactions in a small-class setting.¹⁰⁰

97 Finn, J.D. and Achilles, C.M., "Tennessee's Class Size Study: Findings, Implications, Misconceptions", *Educational Evaluation and Policy Analysis*, 1999, Vol. 21, No. 2, pp. 98-99.

98 Finn, J.D., Achilles, C.M. and Boyd-Zaharias, "Enduring Effects of Small Class Sizes", *Teachers College Record*, Vol. 103, No. 2, April 2001, p. 172.

99 Prior, M., Sanson, A., Smart, D. and Oberklaid, F., *Pathways from Infancy to Adolescence: Australian Temperament Project 1983 -2000*, p. 27.

100 Finn, J.D. and Achilles, C.M., "Tennessee's Class Size Study: Findings, Implications, Misconceptions", *Educational Evaluation and Policy Analysis*, 1999, Vol. 21, No. 2, p. 103.

- 5.86 Tennessee's Project STAR proved that class sizes of 17 students or smaller in the early primary years are beneficial to all students and that the benefits accrue disproportionately in favour of disadvantaged students. It would be reasonable to expect that the costs of reducing class sizes so dramatically would be partially offset by a reduced requirement for remedial and behavioural intervention in the short to medium term and, perhaps fully offset by improved economic, educational and social outcomes for disadvantaged students in the longer term.
- 5.87 Unfortunately, smaller class sizes do not come cheaply. The NSW Department of Education and Training estimated the staffing cost to NSW of reducing class sizes to not more than 20 students in Years K to 2 at \$225 million.¹⁰¹ Using ABS and Victorian government budget figures it is possible to estimate that the additional cost of moving beyond the current class size targets to class sizes of 17 in Prep to Year 3 is about \$190 million in Victoria alone, without allowing for the provision of additional classrooms.¹⁰² Extrapolating either estimate suggests the cost of reducing class sizes in Years K to 3 to not more than 17 students throughout Australia would be more than \$800 million per annum. While the Committee believes that this target may not be achievable in the medium term, a more modest reduction in class sizes should be attempted.
- 5.88 In the Committee's view, the positive impact on students of reducing class sizes well under the present or near term projected levels would be dramatic and would enhance the impact of the other recommendations in this report to improve literacy teaching and learning. The evidence indicates that the benefits would transmit to better learning and behaviour across all learning areas throughout primary and secondary schooling, well beyond the years targeted for significant class size reductions. It would be a gender neutral intervention that would lift the educational achievement of all students while it would benefit disadvantaged students the most.
- 5.89 The expenditure necessary to make major reductions in early primary school class sizes is justified by the improved educational and social outcomes and resulting long-term savings. The Committee hopes that public discussion and support of this issue will encourage governments to find the resources necessary to implement the following recommendation.

101 *Inquiry Into the Provision of Public Education in NSW*, First Report, May 2002, p. 85.

102 ABS Schools Australia Cat No 4221; Victorian Budget Estimates: Statement 2 - Department of Education and Training, p. 26, Victorian Teacher Salary - \$54,202 plus 30% on costs x 2,650 additional teachers.

Recommendation 13

The Committee recommends that the State and Territory governments reduce class sizes in Years K to 3 to not more than 20 students by 2005. The Committee recommends that the Commonwealth support this by assisting to meet the additional capital cost of reduced class sizes (in proportion to its current share of capital funding).

Conclusion

- 5.90 There are several reasons for boys' poorer performance in literacy compared to girls. These reasons are not fallacy or folklore. The appropriate ways to address boys' literacy difficulties include examining current education policies, raising teachers' awareness, promoting better teaching and assessment strategies, adequately addressing behavioural and developmental barriers and providing smaller class sizes in early primary school to maximise the benefits of good teaching. The strategies recommended in this Chapter will enhance the literacy achievement of all children but will provide the greatest benefits to those children, boys or girls, who are most in need.