

THE CASE FOR EARLY INTERVENTION

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Abstract

It would be difficult to exaggerate the importance of literacy to the well-being of the individual and society. Literacy also

provides the foundation for the development of life-long learning which is essential if Australia is to establish and maintain the flexible, innovative and internationally competitive workforce that it seeks. Yet there is sufficient evidence available to establish that some 10 to 15 per cent of Australian school children at the end of the compulsory years of schooling have inadequate literacy skills. There is also evidence, for example from the Victorian Quality Schools Project, showing that difficulties in literacy development are manifest early in children's schooling.

Given that the consequences of inadequate literacy are far-reaching, that students having difficulties can be identified early and that effective means for improving students' literacy development are available, action needs to be taken at system and school level. Using Stringfield's concept of the High Reliability Organisation, it is argued that primary schooling should be reconceptualised so that it becomes highly reliable in relation to literacy achievement, ensuring as close to universal literacy as is possible for the student population. Such a reconceptualisation would see priority being redirected to the early years of primary schooling, with system/school goals, resource allocation and performance indicators reflecting this. Strategies involved, such as funding arrangements, school resource allocation (eg. class size, teacher expertise), staff professional development, consistent general and special intensive literacy programs, monitoring and reporting on student progress, a possible new form of national sample surveys, and cost effectiveness, are considered in relation to their effectiveness in establishing primary schools as High Reliability Organisations for literacy achievement.

In recent years attention in Australian education has focussed on the years following primary schooling, yet the foundations for the skills and attitudes which are vital to success in later education and in employment are established much earlier, in the home and in the early

years of schooling. Children entering primary schools come from a great diversity of backgrounds and bring with them a wide range of skills and levels of development. The challenge for the early years of schooling is to enable all children to develop the fundamental educational and personal skills and attitudes on which they can continue to build throughout their schooling and subsequent lives. Central to these fundamental skills is literacy.

The Need to Maximise Literacy

It would be difficult to exaggerate the importance of literacy to Australian society and Australian people today. As Christie (1990) indicates, "There is in fact virtually no area of contemporary life in which literacy is not involved in some way..." (p.2).

At the individual, personal level, literacy is seen to be critical to a person's quality of life, development of full potential, achievement and maintenance of self-esteem, and the ability to interact successfully with other people and with the myriad of institutions and processes involved in daily life (House of Representatives, 1991; 1993).

At the broader level, Australia's social cohesion, sound social functioning, and culture of equity and democracy are reliant on literacy (House of Representatives, 1991), given that literacy is the foundation of societal systems, groups and processes, such as

communication, community decision-making, regulation, citizenship, production, consumption, construction, transport, health, welfare and justice.

Literacy is, of course, fundamental to formal education, learning and training. It provides not only the means of acquisition of information and skill during schooling, but is also the key to a person's general level of educational achievement in school and successful completion of schooling (McGaw, Long, Morgan, & Rosier, 1989). Moreover, the ability to use the different linguistic forms or registers associated with different academic disciplines is basic to our thinking, knowing and learning in these fields (Cambourne, 1988).

Similarly, literacy is central to vocational education, training, and skill formation (House of Representatives, 1993). In an economic context characterised by continuing change in the nature and level of skills required of employees, there is the need for people to be able to engage successfully in on-going training, retraining and learning, if Australia is to develop the flexible, dynamic and highly skilled workforce that is capable of maximising innovation and productivity, and achieving an internationally competitive Australian economy (House

of Representatives, 1993). Literacy is the foundation of life-long learning and it is the education system which bears responsibility for ensuring that Australians develop that requisite ability.

The costs of a failure to achieve universal literacy (or as close to it as possible) in the school population are high, both for the individuals concerned and for the nation. Maximising literacy throughout Australia would mean many savings and gains. In the school context these would derive from:

reduced need for on-going remediation, special support for underachievers and disadvantaged students, and special education programs;
fewer students repeating year levels;
reduction in truancy, discipline problems and delinquency; and
increased ease of teaching in later primary and secondary years, due to reduced range of achievement levels in classes and increased engagement of students in learning, with a consequent increase in the efficacy of learning of all students and decreased burn-out and stress of teachers.

The savings in the broader context of adult society would come from reduced costs of unemployment, crime, individual and family welfare, health and second generational effects on literacy, learning, behaviour and productivity. Using the concept of investment in human capital, national gains would derive from the increased productivity of literate individuals and the improvement in the competitiveness of the Australian economy.

Magnitude of the Literacy Challenge

In the recent Commonwealth report on literacy in Australia, The literacy challenge (House of Representatives, 1993), it is estimated that between 10 and 20 per cent of the adult Australian population is functionally illiterate. The same estimate was presented in an earlier report (House of Representatives, 1991). The source cited for this estimate (DEET, 1991) in fact claims that some 10 per cent of Australian adults "appeared to have difficulty accomplishing everyday reading and writing tasks" (p.7), an assertion said to be based on research by Wickert (1989).

Wickert's study was based on a multistage, non-random sample of 1496 adults, aged 18 and over, drawn from all states and the ACT. Literacy ability was assessed on three categories of task (document, prose and quantitative literacy) which required not only the ability to read, but the taking of action demanded by the task. Her results were expressed in terms of the percentage of the sample giving correct responses to items at each of five levels of difficulty in each of the three task categories. Using this study as a basis, the estimated percentage of

Australian adults who are "functionally illiterate" or who "have difficulty accomplishing everyday reading and writing tasks" depends on where one wishes to draw the line.

What then of the literacy abilities of school-age children in Australia? Since the adult population includes, for example, people who received fewer years of schooling than required today, people who experienced different curricula, people who were educated overseas, and people whose health and age might affect their performance, it would be invalid to assume that adult literacy rates hold for school-age children.

Any attempt to present firm conclusions about literacy levels of Australian school children is hampered by several factors. Data are not collected annually in all states and territories. Where data are collected, different Year levels are studied. The instruments used differ greatly in nature; they include, for example, commercially produced standardised tests, specially designed tests and teacher judgements using rating scales. The operational definition of literacy differs from one study to another, with consequent differences in what is judged to be the minimum satisfactory level of literacy. The basis for deeming students to be at risk differs from one study to another.

Sampling methodology differs. Some studies use structured random samples, in others randomness is less evident. Some samples are sufficiently large to enable performance of sub-groups to be reported reliably, in other cases this is not so. (It is noted that population testing is not required for the purpose of gathering information about Australian literacy levels. An appropriately selected sample can provide valid estimates, doing so at a reduced cost and with less interference in school operations.)

Not all results of studies are publicly available.

Some information on literacy is presented by states /territories in the annual National report on schooling in Australia. For example, in the 1992 National report (Australian Education Council, 1993), NSW presented information from the Basic Skills Testing Program, Queensland from the Assessment of Performance Program, and Tasmania from its testing program for ten-year old students.

However, the best indication of likely national literacy levels comes from well-designed studies in different states which have been based on large samples. Three examples illustrate this. The Monitoring Standards in Education Project in Western Australia (Titmanis, Murphy, Cook, Brady, & Brown, 1993), studied the achievement levels in reading, writing and mathematics of 4,500 government school students in Years 3, 7 and 10 by means of a range of innovative paper and pencil assessment tasks. A study was undertaken by the Australian Council for Educational Research (McGaw et al., 1989) of the literacy and numeracy

achievements of 1,536 Year 5 and 1,112 Year 9 Victorian government and non-government school children selected on a stratified random basis from 52 schools, using tests of reading, writing and mathematics. The Victorian Quality Schools Project (VQSP) (Hill, Holmes-Smith, & Rowe,

1993) is progressively reporting on the literacy achievements of some 14,000 government and non-government students from Prep to Year 10, in a three-year longitudinal study which uses both the Victorian English Profiles and the Torch Test. Data from the first two years of the study have been used to construct the normative data presented in Figure 1.

What then can be concluded about the nature and magnitude of the literacy challenge in Australia? If one were to hazard a conservative guess based on the data reported above, it would be that some 10 to 15 per cent of Australian children in the compulsory years have literacy skills below the minimum level deemed to be adequate for their Year level; and some 5 to 10 per cent more have some difficulties in literacy which need attention if their school work is not to be hampered to some extent.

Early Identification

Difficulties in learning to read are a significant indicator of likely literacy problems; reading ability is basic to the achievement of literacy. Early identification of children with difficulties in learning to read is known to be possible. The Australian Temperament Project (ATP) is a study of 2,443 children drawn as a stratified random sample from urban rural areas of Victoria and followed from 4-8 months to age 10 (at present). As part of the ATP, children's reading abilities and difficulties have been studied from Year 2 to Year 4. Reading difficulty (RD) was defined as 'failure to learn to read at an appropriate age or grade level for no obvious reason (such as intellectual disability)' (Pryor, 1994, p.3). Pryor concluded that children with reading difficulties can be identified reliably at Year 2, using a test easily administered by teachers (the ACER Primary Reading Survey, Word Knowledge, Level B), given the stability of children's performance from Year 2 to Year 4.

Pryor concluded that 'RD is predictably permanent unless there is some effective remedial intervention' (p.5) and that children identified as having reading difficulties do not 'grow out of it' nor 'recover' from it on their own. Pryor also noted the strong association between RD and behaviour problems, indicating that at least 40 per cent of the children in the sample with antisocial behaviour or conduct disorder also had very poor reading skills and low school achievement.

Figure 1 demonstrates that teachers in the VQSP are able to identify

students in the bottom 10 per cent of the sample for reading achievement by the end of Year 1, using the Victorian English Profiles.

Moreover, the growth trajectory for the bottom 10 per cent of students in Figure 1 indicates that, between Year 4 and Year 10, there is a development of only one band width, with an actual decline in achievement levels in Years 7 and 8. The Reading Recovery program, which is used in many schools to help student with reading difficulties, also identifies students for special help in or at the end of Year 1.

On the basis of data from an earlier study within the ATP, Pryor (1994) considers that this may be too early for reliable identification. In that study a group of children identified in Year 1 as RD were followed up 18 months later and one third of them were found to have 'recovered' without help. Pryor concluded that these were probably late maturers rather than children with RD and thus they had not required intervention to develop to an average level of reading ability. Pryor's recommendation, therefore, is that identification in Year 2 is

much more reliable.

On the other hand, while identification undertaken at the end of Year 1 may result in some false positives included in the group of students deemed to require intervention, it could be argued that this is preferable to allowing students who need help to develop the cumulative reading deficit that would occur through Year 2 and the accompanying loss of self-esteem and associated behaviour problems. The longer the time before intervention, the more difficulty there is likely to be in achieving a satisfactory level of literacy.

Effective Means of Intervention and Improvement

Research evidence is available showing that the means exist to intervene effectively when children experience difficulties learning to read. Reading Recovery is an example of an intervention program which has been widely adopted (in New Zealand, Canada, England, Australia, USA) and extensively evaluated. Three general forms of research studies can be distinguished:

experimental research or syntheses of such research (for example, Clay, 1993; Iversen & Tunmer, 1993.; Pinnell, DeFord, & Lyons, 1988; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1991, 1994; Rowe, 1991; Wasik & Slavin, 1993);

qualitative investigations of perceptions of the program (for example, Geekie, 1988; Office of Her Majesty's Chief Inspector of Schools, 1993);

records of program achievements (for example, Clay. 1993; Dyer, 1992; Office of Her Majesty's Chief Inspector of Schools, 1993; Pinnell et al., 1988; Smith, 1993; The Reading Recovery Program, Ohio State

University, 1992; Wheeler, 1984).

Regardless of the form of research, the conclusions drawn about the effectiveness of the program are positive, indicating significant improvement in participants' literacy achievement levels and maintenance of those improvements over time. (This includes research which leads to suggested modifications of Reading Recovery, such as that of Iversen & Tunmer, 1993, which argues that the inclusion of systematic training in phonological decoding skills would increase the program's effectiveness.) While the quality of the research varies, it does include carefully designed work which engenders confidence in the results.

Reconceptualising the Primary School to Achieve Universal Literacy

Given that the consequences of inadequate literacy are far-reaching, students having difficulties can be identified early, and effective methods for improving students' literacy development are available, it is argued that action must be taken at system and school level to reconceptualise primary schooling in order to achieve as close to universal literacy as is possible in the student population.

Stringfield's application of the concept of the High Reliability Organisation (HRO) to the school (Stringfield, 1994) provides the framework for the proposed reconceptualisation. He points out that, although traditional organisational management theory is based on repeated trial and error leading to gradual improvement, some organisations are not able to use this approach. To the airline passenger, it is critical that the airline, the pilot and all involved in that passenger's flight achieve a successful flight on the first attempt. Airlines form one example of organisations which are

assigned the stunning task of operating correctly the first time, every time, forever, and honoring the absolute avoidance of catastrophic failure - trials without errors' (Stringfield, 1994, p.3). Airlines are thus HROs for successful flights; other outcomes of their organisational management may be less critical.

The achievement of literacy is critical to the well-being of individuals and the nation. In this matter there should be 'absolute avoidance of catastrophic failure'. It is argued therefore that primary schools must be reconceptualised as HROs for the achievement of student literacy; in particular they must enable each child, before Year 4, to learn to read at an appropriate level and to have the capacity to continue to develop that ability in subsequent years.

The characteristics of HROs set out in Figure 2 provide some indication of the types of strategy that need to be adopted by schools,

state/territory systems and the Commonwealth if primary schools are to become highly reliable for student literacy achievement. Set out below are proposed significant and specific strategies for each level to adopt in order to achieve this goal.

1. Targeted resourcing of an integrated literacy strategy consisting of a program for general early literacy instruction (such as First Steps) and a program for intervention at the end of Year 1 (such as Reading Recovery).

It is important that there are both structured mainstream teaching programs and early intervention programs in place in the early years of school and that the two types of programs are conceptually compatible and mutually reinforcing in their approach.

Two major areas for resourcing are involved: professional development courses to provide the initial knowledge and skills for trainers and teachers; and implementation and maintenance of programs in schools. While the focus of any general early literacy program would be on teaching in the first four years of schooling, it would be desirable to train all teachers in primary schools, in order to gain whole-school commitment to programs and to achieve consistency of approach to literacy instruction throughout the school.

Funding would need to be allocated for general early literacy programs to train consultants/trainers, who in turn would train primary teachers on a school by school basis; and in intervention programs to train and employ tutors, and to train and employ teachers. It is estimated that the cost of implementing such programs on a national basis would be in the order of \$66 million.

Can Australia afford to allocate \$66 million annually to a literacy strategy for children? This is, in part, a question of the cost effectiveness of such a strategy, especially the cost effectiveness of the intensive instruction component, which is more expensive than the general early literacy instruction component. One of the difficulties of estimating the cost effectiveness of literacy programs is that one can only speculate about the financial and other gains and savings to be achieved by its implementation, as well as about the financial and other losses of not implementing it. Implementation costs are also immediate and short-term costs, whereas the gains and savings/losses of implementation/non-implementation are likely to extend over the lifetime of the students concerned. Research such as that by Gramlich (1986) and Dyer (1992) provides support for the cost effectiveness of such a literacy strategy.

2. Safety net provision

A small percentage of students in Reading Recovery programs (as an example of an early intervention program) have been found unable to reach the average achievement level of their class. In some cases this is due to transfer out of the school in which the program is offered or to inconsistent and insufficient school attendance, because of illness, family difficulties or truancy. In other cases students have learning or cognitive difficulties that require specialist help. A safety net program needs to be developed and implemented in all schools to provide for students who remain in the intervention program but do not benefit from it or those who, although needing assistance, do not enter or do not remain in the program.

3. Ongoing monitoring of and accountability for performance

There is a dearth of regular, valid, reliable, comparable and publicly available information in Australia about student literacy achievement. Such information is vital if effective strategies are to be devised to improve literacy and if resources are to be targeted efficiently. For this purpose, nationally consistent information derived from sample rather than population testing is appropriate. Such national sample surveys need to be undertaken and reported publicly. Agreement also needs to be negotiated with the states and territories to include information on literacy achievement levels of primary school students (especially in years K/P/R -3) in the annual National report on schooling in Australia, using a common framework. At the system level, there needs to be parallel reporting of performance using performance indicators based on the achievement literacy targets, as well as for performance appraisal of senior executives and school principals, and annual accountability requirements for schools.

4. Whole-school and teacher/classroom literacy strategies

At the school level, both school-wide organisational strategies and strategies relating to the teacher/classroom are necessary. Too often school reform involves the organisational or structural strategies and stops at the classroom door (Ashenden, 1994). The VQSP (Hill et al., 1993) has demonstrated that a far greater proportion of the variance in students' progress in English and mathematics can be accounted for at the teacher/classroom level than at the school level, with differences between classrooms/teachers in literacy, adjusting for prior achievement and intake effects, accounting for between 36 and 50 per cent of the variance as opposed to a mere four to seven per cent for between-school differences. The positive impact of structured literacy in-service programs on the quality of literacy teaching and student achievement has also been demonstrated (Rowe, 1991), as has the value of teachers belonging to a stimulating professional learning community

in their work environment (Firestone & Pinnell, 1993; McLaughlin & Talbert, 1993).

School level strategies include:

Whole school commitment to the importance of literacy teaching and the achievement of satisfactory levels of literacy achievement for all students, written into the school charter or planning document as a key school goal. From establishment of this common school goal, several

other critical features of school organisation will be facilitated.

Consistency of approach to literacy teaching across all teachers and classes throughout the school, with teaching based on conceptually consistent programs for general early literacy teaching and for intervention and intensive instruction for those identified as having difficulties in Year 1.

Establishment and maintenance of a program of professional development for all staff, consisting of the following strands:
engagement of teachers in structured literacy in-service programs; through the school leadership, development of a culture of professional interaction, collaboration and learning among staff, enabling good literacy practices to be shared; and
use of a professional growth model of appraisal (planning, monitoring, feedback) for individual teachers to assist in the further development of professional skills.

Resource allocations within the school consistent with the goal of literacy for all students, such as:
placement of the school's most competent and experienced teachers in the junior classes where children begin their formal literacy learning and where their most rapid period of literacy development occurs;
smaller class sizes in the early years, so that teachers are able to observe and respond to individual needs and developments;
establishment of a position for literacy coordination;
allocation of a budget to literacy commensurate with the importance placed by the school on this focal area;
provision of resources for a program of professional development;
provision of resources to enable parental involvement in literacy activities with their children to be encouraged and supported by school structures, activities and staff;
establishment and maintenance of extensive, high quality literacy resources within the school, to which students have ready access.

Establishment of a system of monitoring, assessing, recording and reporting on literacy achievement levels of each student in each class, preferably assisted by use of flexible computer software, so that

knowledge of and planning for each student's pattern of development is available to teachers and parents.

Many directions and policies in education are subject to controversy, disagreement and uncertainty. The critical importance of literacy is one area of agreement among all sectors and groups concerned with education. A comprehensive strategy which would transform primary schools into High Reliability Organisations for achievement of universal student literacy has the potential to transform conceptions of schooling and the public esteem attached to schools and to education. This paper advances the proposition that illiteracy among young people can largely be eliminated. The know-how exists to achieve such a goal, the resources required are not prohibitive, especially when the costs of not achieving this goal are taken into consideration.

The key ingredient that is now required is the commitment of the profession and the political will to make the elimination of current levels of illiteracy among school children a thing of the past..

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Figure 1. Victorian Quality Schools Project: Student Progress in Reading P-10

1. HROs require clarity regarding goals. Staff have a strong sense of their primary mission.
2. HROs extend formal, logical decision analysis, based on standard operating procedures (SOPs), as far as extant knowledge allows.
3. HROs recruit and train extensively.
4. HROs have initiatives which identify flaws in SOPs and change those that prove inadequate.
5. HROs pay considerable attention to performance, evaluation and analysis to improve the processes of the organisation.
6. In HROs monitoring is mutual (administrators and line staff), without any loss of autonomy or confidence.
7. HROs are alert to surprises or lapses, preventing small failures from cascading into major system failures.

8. HROs are hierarchically structured, but they also stress collegial decision-making, cooperation, coordination and line-staff discretion.
9. There is a close interdependence of staff in HROs.
10. Key equipment is maintained and kept in the highest working order.
11. HROs are invariably valued by their supervising organisations.
12. Short-term efficiency takes a back seat to very high reliability in HROs.

Figure 2 Characteristics of High Reliability Organisations (Stringfield, 1994)

1 Recent Australian inquiries, reports, research and publications have stressed the need to conceive of literacy in the current and future Australian context as being more complex and demanding in nature than a minimal notion of the ability to read and write simple text. For the purpose of this paper the following definition is adopted.

Literacy is the ability to read and use written information and to write appropriately, in a range of contexts. It is used to develop knowledge and understanding, to achieve personal growth and to function effectively in our society. Literacy also includes the recognition of numbers and basic mathematical signs and symbols within text.

Literacy involves the integration of speaking, listening, and critical thinking with reading and writing. Effective literacy is intrinsically purposeful, flexible and dynamic and continues to develop throughout an individual's lifetime.

...the term 'literacy' is used to mean literacy in English (DEET, 1991, p.9).

2 An exception is made of those students who, by means of the extent of their intellectual disability for example, do not have the capacity to learn to read.