Effective instruction for socially disadvantaged low-progress readers:

The Schoolwise Program*

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Abstract

In this article, I consider social class and reading performance, outline a non-categorical approach to reading disability, describe the reading intervention program we have developed for older low-progress readers, and seek to demonstrate how students from socially disadvantaged backgrounds can, and do, make substantial progress when offered effective reading instruction based on the available scientific research evidence.

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In the fourth of his 2008 Boyer Lectures, Rupert Murdoch spoke frankly about the failure of public education systems:

> "The unvarnished truth is that in countries like Australia, Britain, and
> particularly the United States, our public education systems are a
> disgrace. Despite spending more and more money, our children seem
> to be learning less and less – especially for those who are most
> vulnerable in our society." (Murdoch, 2008, p. 61).

He went on to say "The tragedy today is that in many nations like Australia, the people who need a solid education to lift them out of deprived circumstances are the people who are falling further and further behind" (p. 62). Deputy Prime Minister and Education Minister, Julia Gillard, readily agreed with Murdoch the day following his lecture, commenting that too many students were failing to meet minimum standards and that most of these were from disadvantaged backgrounds. As will become evident, these problems begin early, as a result of these students struggling to learn to read in their first few years of schooling.

In this article, I shall describe the program with which I have been involved since 1996, designed to meet the needs of older low-progress readers from socially disadvantaged backgrounds. But, first, I would like to provide a brief, more personal perspective on this topic.

A Personal Preamble

Since the Mona Tobias Award address is traditionally presented orally, I have taken the liberty of providing a more informal account of my work in this area than the usual, more formal research report and to reveal the roots of my interest in helping socially disadvantaged low-progress readers. It should be made clear at the outset, however, that the work on the Schoolwise Project reported here owes as much to my project co-director, Dr Robyn Beaman, as it does to me. Having said this, I take personal responsibility for the more general and critical views on education expressed here and my interpretations of our research findings.

As a working class lad from a council housing (i.e. public housing) estate in Derby in the UK, I made it to Manchester University just after the hippie 'summer of

love' in 1967, by the skin of my teeth. This was thanks to a pushy mother who had made it her business to teach me to read at home when, as a result of moving school at an inopportune time, I failed to do so in my first year or so of schooling. (She also continually reminded me to 'speak properly', as she put it.) By dint of her efforts, I had passed what was known as the '11 plus' exam and had gained admission to a quasi-grammar school. In those days, the doors were still open for bright working class kids to escape the poverty trap. So, coming originally from a working class background and also being English by birth, I have always been fascinated by social class and the way it permeates almost every aspect of English (and, to a lesser extent, Australian) society.

Partly as a result of taking subsidiary units in sociology in my first (honours) degree in psychology (weekly rants from a Mancunian[1] marxist in a second year unit entitled 'Class, Status and Power' spring, unforgettably, to mind), but also because of the hippie spirit of the times, I became a thoroughly radicalised 'class warrior'. (This was a far cry from the moderate who was subsequently selected as a parliamentary candidate for the Social Democratic Party in the 'Falklands' general election in Britain of 1983 - 10,613 votes but I came third, out of three!). Predictably, if paradoxically, I also became thoroughly 'embourgeoised' in the process and learned from Nancy Mitford, and later Jilly Cooper, just what was 'U' and what was 'non-U'. (To this day, I refer to serviettes as 'paper napkins' but I have forced myself to re-learn saying 'toilet' and to stop saying 'the loo' in Australia.) More seriously, I was also greatly influenced by the seminal (if often misunderstood) work of the British sociologist, Basil Bernstein, on 'Class, Codes and Control' (Bernstein, 1971) and his concept of restricted and elaborated code users.

Having received a very patchy education in psychology (far too much Freud and next to nothing on behaviour analysis), I was fortunate enough to be appointed, immediately after graduation in 1970, as an academic research associate to Professor Peter Mittler at his then newly formed Hester Adrian Research Centre (HARC) at Manchester University, where I completed my doctoral research on receptive language development (see Wheldall, 1976 for a summary). Peter and his colleagues patiently filled in most of the gaps in my psychology education including a very thorough grounding in research methodology and the work of B. F. Skinner on behaviour

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[1] Mancunian means a native of Manchester, UK.

analysis and its applications in special education. (I was still quite keen to 'smash the state' at this point and Peter also deserves credit for putting up with a hippie research associate with hair well below his shoulders).

As part of a continuing research program on the development of the Sentence Comprehension Test (Wheldall, 1987; Wheldall, Mittler, & Hobsbaum, 1979, 1987), after I left Manchester for a lectureship at Birmingham University in 1973, I began to explore the effects of social class on receptive language development and how best to help pre-school children from disadvantaged backgrounds by means of pre-school education (Wheldall, 1978; Wheldall & Martin, 1977; Wheldall, Anderton, Bott, & Kingslake, 1982). In short, we confirmed that sentence comprehension and vocabulary were both strongly associated with social class (socio-economic status as measured by father's occupation) and that pre-school interventions could have a powerful effect in improving the receptive language skills of young children from less advantaged home backgrounds. We also found (Wheldall et al., 1982) strong links between social class and reading performance at six years old. Young children from less advantaged home backgrounds came to school with less well developed receptive language skills (unless they had received some form of effective pre-school intervention) and this class effect also manifested itself in the form of low progress in learning to read, sowing the seeds for later school failure and, hence, the perpetuation of the class system.

If ever there were any residual doubt about the influence of social background on students' reading and related skills, such doubt has been expunged by the publication of the findings from the first NAPLAN (National Assessment Program Literacy and Numeracy) in 2008 (Ministerial Council on Education, Employment, Training & Youth Affairs, 2008). From this first national survey of the performance of Australian school students in Years, 3, 5, 7 and 9, it is clear that children's home backgrounds, with socio-economic status estimated by both level of parental education and parental occupation, are closely linked to literacy skill levels. Social class and reading performance are undoubtedly closely related, with students from less advantaged home backgrounds typically underperforming in comparison with their more advantaged peers. Quick calculations of the effect sizes (Cohen's delta) for differences in mean reading performance of students falling into the top and bottom categories (for both parental education and parental occupation) in Years 3, 5 and 7 show them all to be large (>0.8), averaging 0.94. In other words, there is very nearly a standard deviation difference in performance levels. Moreover, at least six times as

many students from the lowest category compared with the top category fall into Band 1, 'Below National Minimum Standard'.

In this article, I shall describe the reading intervention we have developed for older low-progress readers (MULTILIT) and seek to demonstrate how students from socially disadvantaged backgrounds can, and do, make substantial progress when offered effective reading instruction based on the available scientific research evidence. Prior to this, however, it is important to spell out our overall approach to teaching low-progress readers to provide a context for what follows.

A Non-Categorical Approach to Teaching Low-Progress Readers

Students struggle to learn to read for a variety of reasons. The actual causes of reading disability are frequently not known, are more often hypothesised than proven, and tend to be inferred from the fact that such students are failing to progress at the same rate as their peers. This is one reason why I prefer to use the more neutral term 'low-progress readers'.

As a result of scientific research carried out over the past 40 years, most reading scientists now subscribe to variations of the phonological-deficit theory of reading difficulties (reviewed Pogorzelski & Wheldall, 2005), that is that reading problems are largely the result of language difficulties, specifically the ability to segment and to blend the component sounds within words. Problems in phonological processing may arise from intrinsic (biological) factors, extrinsic (environmental) factors, or both. I have suggested a simple two factor model (Pogorzelski & Wheldall, 2005) to account for the likely outcomes of the interplay of these two main factors: intrinsic, possibly heritable (Bishop, 2001) phonological processing difficulties and extrinsic difficulties resulting from an impoverished language and literacy learning environment. It is important to emphasise that intrinsic and extrinsic factors are probably *both* differentially distributed (let us assume normally, in the absence of evidence to the contrary). The practical import of this is that even students whose inherent phonological processing ability is somewhat reduced as a result of intrinsic (biological) factors, but whose performance is extraordinarily low because they have suffered the 'double whammy' of this being coupled with a poor literacy learning environment (at home and/or school), can relatively easily be helped once effective instruction is provided. On the other hand, students who have enjoyed an optimal language and literacy learning environment, but whose intrinsic phonological

processing ability is severely compromised, are probably still going to struggle even when provided with exemplary, evidence-based best practice remedial instruction, and are likely to need continuing support over many years. Friend, DeFries, and Olson (2008) have recently provided empirical support for this on the basis of their study involving 545 identical and fraternal twins of which at least one child from each set of twins had a reading disability. They concluded that: "Genetic influence was higher and environmental influence was lower among children whose parents had a higher level of education compared with children whose parents had a lower level of education" (p. 1124) and that their results are supportive of the view that "poor instruction or lack of reading practice may often be the main cause of reading disability in children from low-SES families" (p. 1129). Theoretically, this is all very interesting but does it actually help us much in practice?

Diagnosis

Endemic within the field of research and practice in reading disability has been a preoccupation with the diagnosis of the underlying causes of reading difficulties, specifically to identify those students who may be said to be dyslexic as against being so-called 'garden variety' low-progress readers. In some countries, a formal diagnosis of a learning disability such as dyslexia may make access more likely to increased facilities and support, curricular and assessment dispensations, and, not least, special funding. Until recent years, the most widely accepted definition and diagnosis of dyslexia was predicated upon an observed discrepancy between a child's reading performance and his/her more general intellectual and/or verbal ability. This 'discrepancy' model has come under increasing attack over the past decade or so (see Limbrick, Wheldall, & Madelaine, 2008 for a recent review) and is currently being largely replaced, in the US and the UK at least, by a Response to Intervention (RtI) model (described below).

But there is a more fundamental objection to this preoccupation with diagnosis and categorisation, regardless of how or whether the categories may be substantiated objectively. While the label of dyslexia, or learning disability more generally, may afford some comfort to students struggling to read and to their parents, in our present state of knowledge, at least, there are few or no implications of such a diagnosis for specific instructional intervention that is any different from what we might offer any student struggling to learn to read. Some of the loose talk surrounding diagnosis and remediation of dyslexia presupposes a magic bullet to fix the reading disability

specifically of children with dyslexia, access to which they will somehow be denied without an appropriate diagnosis. But the form of instruction we should offer should be no different from that which we would offer to any struggling reader and this form of instruction should be predicated upon evidence-based best practice as identified by scientific research into effective instruction in reading and related skills.

While it is commonly believed that knowing the 'cause' will necessarily help with the solution, this is not necessarily always the case in education. We do not usually know why a student cannot read. Even if we have a very good idea, it still does not help us. What can be even more pernicious is the belief that different causes will necessarily need different treatments or teaching methods. The categories commonly employed to describe students with apparently similar disabilities and difficulties are sometimes questionable but, more importantly, are of little or no use in determining the appropriate way to teach a particular student. How you teach children to read has almost nothing to do with the clinical diagnosis and should be determined not by the nature of the child's disabling condition but by a needs-based appraisal of the student's current level of functioning. Although it might seem like useful information to know the precise minutiae of why a person has a certain disability, very rarely does this actually help us to teach them any better. In spite of considerable research into so called 'aptitude-treatment interactions' (Howell, 1995), there is no convincing body of evidence to suggest that students with different disabling conditions need different forms of instruction; rather, it appears that effective instruction is effective instruction generally.

It is for this reason that many scientifically orientated reading researchers and practitioners now subscribe to what is known as *a non-categorical approach* to teaching students with learning difficulties in the area of literacy (Wheldall, 1994; Wheldall & Beaman, 2000; Wheldall & Carter, 1996). Quite simply, knowing whether a child is dyslexic or not, or the reason why she or he has struggled to learn to read, offers no help in determining what to do to help him or her to master the skills necessary for reading and spelling. Consequently, it makes more sense to address the problem of poor reading directly, regardless of the hypothesised causation, using the most powerful instructional interventions that have been shown to be effective.

So what does this mean for practice? Quite simply, it requires us to focus on the *solution* not the cause. A careful needs-based appraisal of the student's current level of performance in a skill area will help us to determine the entry point for

instruction and to decide on the method or program to be employed. This is not necessarily to say that 'one size fits all'; there may be several alternative instructional methods or programs that have been shown to be effective but the selection of the most appropriate program will be determined by the idiosyncratic needs of the individual child and his or her responsiveness to instruction, *not* the category of his or her disabling condition. I like to regard this as a truly child-centred approach to education. A non-categorical approach also aligns very well with the Response to Intervention model, providing a more sound basis for reaching conclusions about the severity of a child's difficulties in mastering reading and spelling skills than the discrepancy models used in the past, as we shall see.

Response to Intervention

Response to Intervention (RtI) is a tiered model of instruction for students experiencing difficulties in acquiring basic skills and appropriate social behaviours (Bender & Shores, 2007; Council for Exceptional Children, 2008; Fuchs & Fuchs, 2007). Tiered instruction commonly (but not invariably) comprises instruction at three increasing levels of intensity. In the context of literacy instruction, it is predicated upon exemplary initial instruction in reading and related skills being provided at the whole class level during the first 6 to 12 months of schooling. This is known as Tier One instruction. Experiencing initial instruction based on evidence-based best practice will ensure that the vast majority of students will get off to a good start in learning to read and spell. Those students who begin to fall behind, often operationally defined as those in the bottom 25% of what might be expected for the age cohort, are then offered Tier Two instruction.

Tier Two instruction typically takes the form of more intensive, more targeted small group literacy instruction, again based on what scientific research has shown to be the most effective methods and curriculum content for teaching lower-progress readers. Students are taught in small groups of four to six students, preferably by a teacher or paraprofessional who is well versed and skilled in the delivery of effective remedial instructional programs. Such instruction should be provided daily, if possible for at least half an hour. This more intensive (and, of necessity, more expensive) option is reserved only for those 'failing to thrive' under the regular classroom regime of Tier One. Tier Two level intervention is likely to resolve the difficulties experienced by the great majority of lower-progress readers and will enable them to get 'back on track' and progressing at a similar level to their classroom peers. There

will always be a few students, however, who fail to respond even when offered this more intensive level of Tier Two instruction and these students need Tier Three intervention.

Tier Three intervention does not necessarily involve appreciably different instruction from that offered in Tier Two except insofar as the instruction provided is even more intensive, in more specifically targeted form, tailored to the specific needs of the individual student on a one-to-one basis, and preferably provided by a reading expert.

Within the RtI model, students with a learning disability such as dyslexia are defined as those students needing Tier Three intervention, students who are still struggling even when they have been offered both exemplary initial reading instruction (Tier One) and subsequent exemplary remedial instruction (Tier Two). These are typically the students who are likely to need continuing literacy support, possibly over many years. In our present state of knowledge, we have no way of telling in advance just who these students will be other than by using the 'suck it and see' approach of RtI coupled with very careful progress monitoring. The question then arises of how best to judge whether a child is responding well to instruction or not and hence whether she or he needs Tier Two or Tier Three intervention. Traditional reading tests are of limited use for this purpose since they are not usually sensitive enough to pick up small gains over short periods of time, nor should they be repeated frequently or after only a short time interval, if they are to provide reliable measures. On the other hand, it would not be in the best interests of the child to remain for too long on a program under which he was failing to progress and which will only be detected when he is retested at the end of the year or even after six months.

Progress Monitoring Using Curriculum-Based Measurement (CBM)

Curriculum-based fluency measures have emerged as the preferred alternative for progress monitoring (Fuchs, 2004; Madelaine & Wheldall, 1999, 2004). Oral reading fluency may be measured by passage reading tests, having a student read aloud a passage of text and counting the number of words read correctly in one minute. This seemingly rather crude index in fact correlates very highly with other more complex measures of reading including both reading accuracy and reading comprehension. Because this exercise may be repeated frequently with different samples of text from the curriculum at a similar level of difficulty, this provides a

ready means of tracking progress over time. Moreover, these curriculum-based measures are quick and easy to administer.

Curriculum-based measurement provides the means by which we can determine the tier of support a student needs. First, a passage reading test (or tests) may be used as a simple screening instrument to determine which students are struggling to keep up with their peers, say the bottom 25%. These students are then offered Tier Two small group remedial instruction. By subsequently monitoring progress on a weekly or even fortnightly basis over about six weeks we may then determine who is responding readily and who is not and hence who is likely to need more intensive, individualised Tier Three instruction for greater and continuing duration, and even whom we might choose to refer to as having 'dyslexia', for administrative/funding purposes.

Thus it may be seen how a non-categorical approach to remedial instruction for low-progress readers aligns very well with the Response to Intervention model, supported by curriculum-based measurement, and offers the best option for helping low-progress readers in our present state of knowledge. This non-categorical approach to teaching low-progress readers has defined our own work in this area.

A Brief Description of the MULTILIT Reading Tutor Program

In an earlier article in this journal (Ellis, Wheldall, & Beaman, 2007), we described the research locus and conceptual basis for our approach to remedial reading instruction, Making Up Lost Time In Literacy (or MULTILIT), and so I will not dwell on this in detail again here (see also Wheldall & Beaman, in press). In our view, and on the basis of the available scientific evidence, the most effective remedial programs for low-progress readers take a scientifically balanced perspective and involve intensive, systematic instruction in three main areas: phonic word attack skills; sight word recognition; and supported book reading in a one-to-one context. The (revised) MULTILIT Reading Tutor Program (RTP) (MULTILIT, 2007a) incorporates all three of these key features and forms the core of what we offer to low-progress students. The program was specifically designed for teaching low-progress readers in Year 2 and above who are reading at a level considerably below what might be expected for their age and who have not acquired the basic skills needed to become functional readers.

MULTILIT Word Attack Skills

Children learning to read primarily need to learn how to 'crack the code' - how to decode words they have not previously encountered by breaking words down into their component phonic parts. Low-progress readers need intensive, systematic instruction both in how to break up ('segment') words into their component letter sounds and, even more importantly, how to 'blend' component letter sounds into words. MULTILIT Word Attack Skills is designed to do precisely this: to teach low-progress readers the phonic word attack skills essential for rapid decoding, using a synthetic phonics approach (MULTILIT, 2007b).

MULTILIT Sight Words

Sight words are words that can be read automatically on sight without recourse to decoding strategies. When learning to read, it makes good sense for low-progress readers to learn a small corpus of very common sight words so that they will not need to struggle to decode every single word that they encounter in a sentence. MULTILIT Sight Words (MULTILIT, 2007c) systematically teaches the automatic recognition of 200 high frequency sight words. The 200 words included were empirically determined from the most frequently occurring words encountered in children's books (excluding proper nouns and simple, easily decoded, consonant-vowel-consonant or CVC words) on the basis of the research carried out by Morag Stuart and her colleagues in the UK (Stuart, Dixon, Masterson, & Gray, 2003 a, b, c).

MULTILIT Reinforced Reading

Reinforced Reading (Wheldall & Beaman, 2007) is a program developed to enhance the student's independent reading skills, to increase reading fluency, to build vocabulary and to foster comprehension. It constitutes a re-engineered version of the well-known set of tutoring strategies for use with low-progress readers known as Pause, Prompt and Praise (PPP) (Glynn, 1987; McNaughton, Glynn, & Robinson, 1981; Wheldall & Mettem, 1985), in which the role of phonics has been emphasised and the reliance on contextual clues has been relegated to a reader self-checking role. The aim of the tutoring session is for the tutor to listen to the low-progress reader read natural language books at an appropriate level of difficulty for up to 15 minutes, following an introduction by the tutor. The tutor is trained to pause for up to 5 seconds or wait until the end of a sentence when a mistake is made to permit time for self-correction. If no self-correction occurs, the tutor supplies up to two prompts in the form of a general phonic prompt ("How does this word begin?", "What sound do

these letters make?") or a re-read prompt ("Read that again from the beginning of the sentence."), followed by a specific phonic prompt if the first prompt is not successful. When the student correctly reads a sentence or paragraph, self-corrects without a prompt, or successfully uses a given prompt to identify a word, specific praise is given. At the end of the session the tutor asks questions about the passage just read. In addition, two variants of this basic procedure target fluency and comprehension specifically.

These MULTILIT one-to-one teaching activities provide sequential learning for students who are behind in reading skills. The MULTILIT Program is typically implemented by a teacher but a teacher's aide, trained volunteer, trained parent, or skilled peer tutor, working under the direction of a teacher, could also implement the program. Each child is tested on entry to the MULTILIT Program to place them at the appropriate levels in each component of the MULTILIT Reading Tutor Program. The lessons in this program concentrate on decoding skills (MULTILIT Word Attack Skills) and accurate and automatic recognition of sight words (MULTILIT Sight Words), and the practice and generalisation of these skills using the connected reading of real text in MULTILIT Reinforced Reading.

In this article, I want to discuss the findings from a specific application of MULTILIT for socially disadvantaged students, the Schoolwise Program.

The Schoolwise Program

In 1994, the Rev Bill Crews, chairman of the Exodus Foundation (a charity focusing on the plight of the homeless), first approached me with his concerns regarding 'streetkids' and disaffected youth and his desire to implement a preventative program to keep students in school and off the streets. For many of these students, the problems begin early as a result of initial academic failure in learning basic skills and are then exacerbated by the increasing demands made by a largely text-based curriculum predicated upon mastery of the very skills in which they are most deficient. Schooling can become an increasingly aversive experience for many such marginalised students.

Since 1996, the Exodus Foundation has funded a research consultancy annually for the MULTILIT team to run a version of the MULTILIT program, known as the 'Schoolwise Program', on the Exodus Foundation site at Ashfield in Sydney. The aim of the project has been to address the needs of older low-progress readers

from socially disadvantaged backgrounds and who were at risk of serious disaffection from school. The success of the Schoolwise Program in teaching successive intakes of older low-progress readers to learn reading and related skills has been amply documented in our commissioned research report to the Australian Commonwealth Government Department of Education, Training and Youth Affairs (DETYA), 'An Evaluation of MULTILIT' (Wheldall & Beaman, 2000,) which detailed the efficacy of MULTILIT.

In essence, the Schoolwise Project aims to redress substantially the literacy skills deficits of older low-progress 'at risk' students in their final years of primary school (or first year of high school) by providing a program of intensive, systematic, skills-based literacy instruction. Students typically attend the Schoolwise Program every morning for two school terms in a special learning tutorial unit (the Exodus Foundation Tutorial Centre) based in a community centre near to, but not directly associated with, local schools. Thus the program also provides respite within a positively focused learning environment that is clearly and deliberately differentiated from 'school'.

Students are referred by their schools on the basis of social disadvantage, their low levels of literacy (as measured by the Neale Analysis of Reading), their inability to cope with the regular curriculum, and the substantial risk of their disaffection from school. Our own assessment procedures (curriculum-based) prior to student selection provide confirmation of the student's suitability and need.

Research findings based on the results from, and experience with, successive intakes into the Schoolwise Program since the first intake in 1996 have consistently testified to the success of this literacy intervention program (Wheldall & Beaman, 2000). In less than 5 months of instruction, successive intakes have made very large average gains in reading accuracy, reading comprehension, single word recognition, reading fluency and spelling. These were students who had made little or no progress in recent years and who were typically 3 or more years behind in reading and related skills when they entered the program.

The commissioned report to DETYA 'An Evaluation of MULTILIT' (Wheldall & Beaman, 2000) (referred to above) included the findings for the first three years of the Schoolwise Program, 1996 to 1998. In those years, MULTILIT was delivered individually to students as a one to one program; what we would regard today as essentially a Tier Three intervention. Over the past five years or so, however,

we have developed a small group instruction version of the program suitable for use as a Tier Two intervention.

The Intervention

Over time the Schoolwsie Program delivered has changed in both length of daily intervention and type. From the late 1990s until the end of 2003 the program was delivered between 8:45am to 1pm daily including a brief (15 minute) break, resulting in four hours of instructional time daily. The mode of the core MULTILIT Program delivery was on a 1:1 basis, with the instructor working with each child in his/her group successively. (Some of the other lessons during the morning program were group-based, however e.g. SRA Spelling Mastery.)

Over the course of 2004, the main mode of delivery for the MULTILIT core elements changed to a group instruction format and the instructional time was reduced from 4 hours (plus a break) to three hours (inclusive of a 15 minute break). We had effectively reduced the instructional time to deliver the program from 4 hours to 2 hours 45 minutes. This change enabled students to get back to school earlier in the school day.

The Schoolwise Program at the Exodus Foundation Tutorial Centre provides intensive MULTILIT literacy instruction, five mornings per week, for two school terms (approximately 20 weeks) for each cohort of 36 students. As described earlier, the core MULTILIT Program consists of MULTILIT Word Attack Skills, MULTILIT Sight Words and MULTILIT Reinforced Reading (using Pause, Prompt and Praise), and also utilises other supportive evidence–based programs.

Students (since Semester 2, 2004) attend the program from 8:30am to 11:30am, Monday to Friday for two school terms. The daily MULTILIT session consists of: 25 minutes of group MULTILIT Word Attack Skills (two separate lessons for accuracy and fluency); 15 minutes of group MULTILIT Sight Words; 25 minutes of group MULTILIT Reinforced Reading; 20 minutes of group spelling (using the Spelling Mastery program, a direct instruction program from SRA); one hour of 'home group' where individual sessions and independent work are completed, and 20 minutes of peer-tutoring using Reinforced Reading.

The development of a version of the MULTILIT program for delivery in small groups has led to an increase in the cost-effectiveness of the program, delivering the intervention to a larger number of students in a shorter time period. This has also meant a considerable reduction in the amount of time students are out of their regular

school environment each day, with students completing their daily program by 11.30am rather than 1pm, as previously mentioned.

One of the key features of a group-based MULTILIT intervention (as opposed to an individual program of MULTILIT instruction) is that students are placed in groups at the correct level in terms of their ability. Group composition changes for each program component and this is a dynamic process. In addition, the collection and use of program data to inform instructional decision-making is a key feature, with data being reviewed weekly to determine group composition and to monitor progress.

In addition to MULTILIT, students also receive the SRA Spelling Mastery program (Dixon, Engelmann, & Bauer, 1999). This is a rules-based direct instruction program with six levels designed to provide increasingly independent practice of the skills taught through to mastery. It is used in conjunction with the MULTILIT Program, as it is complementary in its treatment of letter-sound knowledge. A placement test is used to determine a student's entry level.

Activities during the home-group period typically include a one-to-one session with the instructor, a one-to-one Reinforced Reading session with a community volunteer, computer program activities and independent work. Each student has an Independent Folder that contains work to be completed during the period, as per their work contract. The work set for the student's Independent Folder is at an independent level in terms of difficulty. Students are able to revise, practise and generalise their skills through worksheets and journal writing activities while learning to work independently. Instructors mark the folder each day and students are responsible for correcting their mistakes the following day. Students are rewarded (using a system of points redeemable for small trinkets) for completing all of the assigned work in their work contract each week.

Developing independent work habits is an important aspect of the program, as many older low-progress students become dependent learners as a result of their learning difficulties. Ensuring that the work to be completed is at an appropriate and achievable level is an important antecedent to independent work completion. During this home group session, students also receive one-to-one instruction in MULTILIT Word Attack Skills (accuracy and fluency) and MULTILIT Sight Words, if needed. The need for and the amount of individual sessions a student has with an instructor is determined by the result of individual testing that is conducted each week during the one-to-one session. In this way, the students with the greatest needs are provided with

more intensive individual instruction. Students are mainly taught in small groups (Tier Two) but are offered more intensive instruction (Tier Three) if they are shown to be struggling to make good progress.

As already mentioned, students also get the opportunity of reading with a volunteer community tutor. The volunteer tutors are trained and monitored in the delivery of the MULTILIT Reinforced Reading strategies using the revised and updated version of Pause, Prompt and Praise, as described earlier. This individual attention with a supportive 'other' is a very important element of the program, ensuring daily practice using instructional level text (90-95% accuracy) for at least 20 minutes. A focus on reading comprehension is included in this session and students are not only required to utilise their word attack skills and sight word knowledge, but must be able to answer questions, recall and recap the story or information in the text. This daily session provides opportunity for the generalisation of the skills directly taught in the program in a more naturalistic text–reading context.

The Schoolwise Program also employs a range of complementary programs in order for students to be able to generalise their skills. For example, once students have completed the MULTILIT Sight Words and/or MULTILIT Word Attack Skills programs, they may move on to comprehension or writing programs, such as the SRA Reasoning and Writing program (Engelmann & Davis, 2001).

An Evaluation of Efficacy

For the purposes of this brief report of our more recent findings, I have combined the data from the last two intakes of students from Semester 1 and Semester 2 of 2008 who participated in and completed the Schoolwise Program for a full two terms. Over the year, 67 students completed the Schoolwise Program and were present for the pre- and post-program assessments. All students were from Years 5 (40) and 6 (27); 40 were boys and 27 were girls. The mean age of the students on program entry was 11 years (132 months; ranging from 115 to 148 months). Each intake of students completed two terms of instruction.

At the commencement of each program, students are typically given a battery of standardised tests of reading and related skills ('the MULTILIT Battery'), administered by trained research assistants. The battery consists of measures of reading accuracy and comprehension (Neale Analysis of Reading; Neale, 1999), single word recognition (Burt Word Reading Test; Gilmore, Croft, & Reid, 1981), spelling (South Australian Spelling Test; Westwood, 1999), oral reading fluency using a

curriculum-based measure (the Wheldall Assessment of Reading Passages; Wheldall, 1996; Wheldall & Madelaine, 2006) and phonological recoding using a non-word reading test (Martin and Pratt Nonword Reading Test; Martin & Pratt, 2001). Students are tested again on the entire battery at the end of the typical two-term (20 weeks) program.

At program commencement, the crude average reading age for reading *accuracy* for these students as measured by the Neale Analysis was 93 months (7 years and 9 months), more than 3 years below chronological age. In terms of Neale reading *comprehension*, the crude average reading age was 88 months (7 years and 4 months), again more than 3 years below chronological age. The verbal ability of the students at the beginning of the study, as estimated by the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997), averaged 90.27 (SD 15.34) (standardized score).

The results for these students attending the Schoolwise Program, showing pre-test and post-test means and standard deviations for all measures (raw scores), after 18 weeks of instruction, are shown in Table 1. In under 5 months of participation in the Program, these students made crude average gains of 20 months in Neale reading accuracy, 16 months in Neale reading comprehension, 20 months in Burt single word reading, 22 months in spelling, 30 months on the non-word test of phonological recoding and could read 46% more words correctly per minute on the WARP (reading fluency).

TABLE 1 ABOUT HERE

Analyses of raw scores indicated statistically significant gains (p<0.0005) on all of these measures. In order to appreciate the magnitude of these gains, we may also examine the relevant effect sizes (ES). The effect sizes (Cohen's delta) were all large (>0.8) ranging from 1.18 to 1.49. These results, then, are shown to be of high educational significance, as well as statistical significance. The performance of the first intake as a whole on a weekly basis over the two terms of instruction is shown in Figure 1. Reading fluency, as measured by performance on the WARP weekly progress monitoring passages, in terms of words read correctly per minute (wcpm), is seen to rise steadily and substantially over the period, from a mean of 76 wcpm to 111 wcpm.

FIGURE 1 ABOUT HERE

A Waitlist Control Study of the Efficacy of the Schoolwise Program

In recent years we have witnessed increasing demand for evidence-based practice in education, a very welcome development, in my view. Unfortunately, as Carter and Wheldall (2008) have argued, evidence of sufficient rigour and quality upon which to base educational decisions is thin on the ground. While there is a plethora of educational research, much, if not most, educational research these days tends to be qualitative or otherwise non-empirically based (Wheldall, 2006). Very few so-called 'gold-standard' truly experimental studies of programs, interventions and innovations are conducted and, it must be admitted, MULTILIT is no exception. While we now have a very large database testifying to the efficacy of the MULTILIT Schoolwise program compiled over the years since 1996 and comprising data on nearly a thousand low-progress readers, we, like many program developers, have experienced difficulties in completing true randomised control trials.

These data, although not truly experimental since we were not able to employ control groups, nevertheless do withstand reasonably close scrutiny with regard to evidence for efficacy.

- First, the gains made have been consistently substantial, statistically significant, replicated over many years now, and the effect sizes based on gains made between pre- and post assessments have generally been large or very large.

- Second, while we do not have actual control group data from randomly assigned groups, we have analysed data from similar samples of low-progress readers over similar time periods who did not receive MULTILIT interventions and gains of this magnitude were not apparent in these samples (Wheldall & Beaman, 2000). We concluded that the typical rate of progress for older low-progress readers from Year 5 was typically very low; not surprisingly since to be defined as a low-progress reader (i.e. over 2 years behind age peers and in the bottom 25% of the age cohort), students could logically only have been making very low progress.

- Third, while other factors could explain the results (e.g., novelty and the experience of being selected for a special program), our findings are unlikely merely to be reflections of the regression to the mean effect. The students were nominated for the program by their home schools on the basis of need and low performance on the Neale Analysis administered by the school using a

different parallel form of the Neale to the one in our battery and administered prior to our pre-testing. They were not assigned to the program on the basis of our pre-testing. Thus, any regression effects resulting in increased score at retest, as a result of the less than perfect reliability of the measures, should have been evident in our own subsequent pre-test scores on the Neale and thereby would reduce the size of gain between our pre- and post-testing. In other words, our results probably already take possible regression effects into account.

- Fourth, as we shall see, weekly graphing of the progress of the intake into the program using the curriculum-based measure, the WARP test, show that reading performance rises steadily over the two terms. This is no trivial point since we can effectively show the learning taking place regularly over time; further evidence that this is not a simple regression effect.

During 2007, however, the opportunity arose of conducting a quasi-experimental, waitlist control study (Wheldall & Beaman, in preparation for publication). The small group version of the Schoolwise program was delivered to 36 socially disadvantaged Year 5 and Year 6 students in each of the two semesters in 2007. While not randomly allocated to conditions they comprised students from the same overall pool of Schoolwise applicants attending local schools. All students were assessed on the MULTILIT battery at the beginning of the first semester, at the end of the first semester and again at the end of the second semester. During the first semester, the first experimental group of students attended the Schoolwise program daily for 3 hours each morning at the Exodus Tutorial Centre while the waitlist control students continued with their regular curriculum in their home schools. In the second semester, the experimental group students who had been receiving MULTILIT every morning returned to their regular classes full-time and the former waitlist control students became the second experimental group receiving MULTILIT every morning in the tutorial centre, in a cross-over design. We obtained complete data sets on 35 of the 36 students in each group, 70 students in total.

At the commencement of the study, students in both groups were the same age (about 10 years 10 months) on average and both groups comprised very similar ratios of boys to girls and Year 5 to Year 6 students. The verbal ability of the two groups at the beginning of the study, as estimated by the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) was also very similar. The mean raw scores were slightly higher

for the waitlist control group on three of the six measures comprising the MULTILIT Test Battery while they were slightly lower on the other three tests but none of these differences were statistically significant.

After the first semester, the experimental group made far greater gains than the waitlist control group on all measures. Analyses of covariance of mid-year test raw scores (with initial pre-test scores as a covariate) revealed that all differences in gain between the two groups at mid-year testing were statistically significant ($p<0.001$, reading comprehension, $p<0.01$). The following table (Table 2) shows the effect sizes comparing the mean raw scores of the two groups at mid-year testing and also the effect sizes for the original experimental group comparing pre and post intervention mean raw scores. As may be seen, all effect sizes, were at least moderate in size (i.e. > 0.5) and mainly large (i.e.> 0.8), demonstrating strong effects.

TABLE 2 ABOUT HERE

As further confirmation, we may also examine the performance of the control group after cross-over, when it became the second experimental group. In brief, these former control students subsequently also made major gains on the measures included in the test battery following two terms in the Schoolwise Program, with large effect sizes evident for all measures (0.88 to 1.42). Consequently, we may claim that our quasi-experimental waitlist control study has provided more rigorous evidence for the efficacy of the Schoolwise MULTILIT program, but a true 'gold standard' randomized control group study has yet to be completed. This should, preferably, be undertaken by an independent, external research group. One of the problems of providing this much-needed experimental data, however, is that we (like all program developers) are dependent upon independent research groups choosing to evaluate our program and having the resources available to do so. Clearly, if we commissioned such a study we would still be compromised. This problem has very broad implications in our quest for truly evidence-based practice generally.

So Where Do We Go From Here?

In this paper, I have endeavoured to demonstrate that low-progress readers from socially disadvantaged backgrounds can and do make substantial gains in reading performance following scientific evidence-based programs of literacy instruction such as MULTILIT. The question now is how do we deliver such instruction to as many struggling low-progress readers as we can, in a cost effective way?

First, at the risk of preaching heresy, I do not believe that we need necessarily to spend more money. The problem of education generally is not too little funding; it is how it is spent. The Auditor General of New South Wales drew attention to this in a recent report:

> "Since 1998-99 funding for literacy and numeracy programs has increased three-fold from $53 million to $154 million in 2006-07. … Despite this, over the last decade State tests have shown little change in results for numeracy and literacy, both in terms of the percentages of students in the performance bands and the state average scores." (Audit Office of New South Wales, 2008, p. 3).

Secondly, nor do I believe that is it because we have too few teachers. We do not need more teachers; perhaps we need fewer. … We might be better served if we spent part of the education salary budget on fewer, better paid, far better trained *educators* of higher initial academic quality, and spent the remainder on paraprofessionals. The profession of teacher has become increasingly devalued by the community and I propose for consideration instead the new profession of educator. We should be seeking our brightest and our best to enter this profession and pay them accordingly. Educators would be carefully selected, academically very bright and very competent to begin with, and highly educated and trained to at least Masters degree level in the science of effective instruction and classroom management as well as in specific curricular areas. They would function more as managers of instruction responsible for designing programs and managing the academic progress of the equivalent, perhaps, of two regular classes and leading a team of educators in training and paraprofessionals who would carry out the day to day instruction under the educator's guidance.

Very few of the MULTILIT tutors who have delivered the Schoolwise Program over the years have been qualified teachers. They have typically been psychology graduates or undergraduates or trainee special educators from non-teaching backgrounds employed as instructors and tutors to deliver the program and to employ Positive Teaching techniques. They typically do not require extensive training because the programs are clear and systematic and the skills are relatively easily mastered. This is not to say that anyone can deliver MULTILIT; some are temperamentally, or even sometimes philosophically, unable to deliver the program to the standard required. Trained teachers sometimes even take a little longer to *unlearn* some of the misconceptions about instruction and how reading works that they unfortunately learned as part of their

professional education at university or from within misguided state education departments.

Having said this about paraprofessionals *delivering* the program, the programs and teams of tutors *must* be led by high-level educators or special educators as defined above. These educators make the instructional decisions regarding the program for each child, collect and analyse independent progress data and make programming decisions based on these data (such as promotion to the next book level, for example), mentor the tutors and, generally, take direct responsibility for the progress of all students under their remit.

And what of the future for MULTILIT? The MULTILIT Research Unit at Macquarie University is currently researching and developing two new intervention programs for younger children. The first 'MINILIT', or Meeting Initial Needs In Literacy, is a small group-based program for students who have failed to make adequate progress in reading during their first year of schooling. The aim is to provide both a more effective and a more cost-effective alternative to the ubiquitous Reading Recovery for young low-progress readers since Reading Recovery is only moderately effective generally, is less effective with students with more serious phonological processing skill deficits, and is very expensive (Reynolds & Wheldall, 2007; Reynolds, Wheldall, & Madelaine, 2009. The findings from our preliminary studies have been very encouraging (Reynolds, Wheldall, & Madelaine, 2007a, 2007b).

The second new program is for even younger children. Currently known as PRELIT, it targets young children in their final year of pre-school prior to beginning formal schooling in Kindergarten/Prep/Reception. It does not seek to teach young children to read but rather seeks to ensure that children begin school with the necessary prerequisite skills to learn to read. Consequently, PRELIT currently has two major foci: structured instruction in phonemic awareness, emphasising both segmenting and blending the sounds in words; and structured story book reading to enhance vocabulary knowledge and to build listening comprehension skills. PRELIT is likely to be particularly necessary for those children who do not typically enjoy the sort of language and literacy learning experiences that most children from advantaged home backgrounds take for granted.

So, in a sense, I have come full circle, returning to my earliest research interests in receptive language and the need to provide effective pre-school education for young children from socially disadvantaged backgrounds. It is only when all children come to school in roughly the same position on the starting grid that we can hope to see almost all

children learn to read quickly and easily. And since literacy underpins everything in terms of future success in school and beyond, it is our greatest hope for ensuring a 'fair go' for all Australians regardless of their social background.

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Table 1

Means (and Standard Deviations) and the Resultant Gains on the Relevant Literacy Variables (Raw Scores) for the Schoolwise Program in 2008

Literacy Variable	N	Pre-test (sd)	Post-test (sd)	Gain (sd)	t	p	ES
Neale Accuracy	67	35.51 (13.01)	53.91 (15.45)	18.40 (9.10)	16.56	<.0005	1.41
Neale Comprehension	67	10.96 (5.34)	17.30 (6.37)	6.34 (4.26)	12.19	<.0005	1.19
Burt Word Reading Test	67	48.45 (13.00)	63.84 (14.90)	15.39 (7.72)	16.32	<.0005	1.18
South Australian Spelling	67	29.28 (6.30)	37.48 (7.30)	8.19 (4.35)	15.41	<.0005	1.30
WARP (wcpm)	67	81.64 (30.33)	118.84 (33.09)	37.19 (14.25)	21.36	<.0005	1.22
Martin and Pratt Non-word	67	18.82 (8.15)	30.93 (6.94)	12.10 (6.33)	15.64	<.0005	1.49

Table 2

Effect sizes (Cohen's delta) comparing mean raw scores of the experimental and waitlist control groups at post-test and also for comparisons of the mean pre and post-intervention raw scores for the original experimental group.

Test	E vs. C	E Pre vs E Post
Neale Accuracy	0.98	1.07
Neale Comprehension	0.80	1.19
Burt	0.55	1.51
South Australian Spelling	0.60	1.23
WARP	0.78	1.57
Martin and Pratt Non-word	0.78	1.32

Figure 1.

Average weekly performance on the WARP (words read correctly per minute or WCPM), Schoolwise Intake 1, 2008.