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Department of Education, Employment and Workplace Relations

Literacy and Numeracy Pilots in Low SES Communities

ORAL LANGUAGE SUPPORTING EARLY LITERACY: Project Evaluation

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Executive Summary

The first three years of school represent a critical developmental window for making the transition from oracy (talking and listening) to literacy – competence transmitting and receiving increasingly complex and novel information via the written word. In order to make this transition, however, a number of individual, psychosocial, and educational factors need to align. Children from low socio-economic status (SES) family backgrounds, families where languages other than English are spoken at home, families in which parental mental health problems exist and / or maltreatment is present are most likely to experience difficulties with the academic demands of the early years classroom environment. Unfortunately many such children will exhibit signs of adjustment difficulty that manifest as behaviour problems, and they stand a high risk of longterm academic and social marginalisation as a consequence. While the transition to literacy (i.e. being able to read fluently and for understanding, and being able to produce text of one's own through hand-writing and / or use of word-processing software) is rightly emphasised as a major focus of the first three years of school, its psycholinguistic basis lies in oral language competencies such as narrative discourse (production and comprehension), phonemic awareness and phonological processing. Early benchmarking of children's academic achievement is currently based solely on literacy competencies but overlooks underlying oral language skills that are important in their own right, and form the basis of the transition to literacy.

This report describes the results of a pilot project (Oral Language Supporting Early Literacy - OLSEL) aimed at strengthening the transition to literacy of children attending low-SES schools across a number of Dioceses within the Catholic Education Commission of Victoria (CECV). The study was approved by both the CECV and the Monash University Human Research Ethics Committee. Following calls for Expressions of Interest through the CECV, fourteen schools were recruited, and these were semi-randomly allocated to Research and Control arms of the study. The schools were shown to be equivalent on important baseline variables (e.g. proportion of students in receipt of disability funding, proportion of students from Indigenous backgrounds, and proportion from home backgrounds where languages other than English were spoken). The only difference at

baseline was the proportion of students in receipt of an Education Maintenance Allowance (EMA – a marker of particular economic hardship), with more of these students being in the Research arm of the study than in the Control arm. A series of standardised measures of reading ability and oral language competence was administered at baseline.

Early years staff in Research schools received a five-day Professional Learning Activity in 2009 that was delivered by language and literacy experts and concerned both theoretical and practical aspects of promoting oral language competence and using this as a means of strengthening early literacy in the classroom. Nearly 1200 (n=1170) children, across fourteen schools, commenced the study in 2008 in Prep and Years 1 and 2 completing baseline assessments of reading and oral language skills. At the end of 2010, follow-up assessments were performed on two subgroups[1] of children - one group that received both reading and oral language assessments at both pre- and post time points (n=489) and the other that received the reading measures only at both time-points (n=568). This represents an overall retention rate in the study of 90%. Intention-to-Treat analysis showed that there were no significant differences in the language or literacy profiles of the students who were lost to follow-up. In addition to these psychometric measures of children's performance, quantitative and qualitative measures were used to gauge teachers' reactions to the intervention, in particular their sense of its transferability and sustainability with respect to their classroom practices.

Within and between-groups comparisons were carried out at the conclusion of the study, and, as would be expected, the skills of children in both arms of the study improved significantly over time. Findings clearly showed significant advantages, however, on both oral language measures and on reading competence for children in the Research schools, and in many cases, the intervention effects were of medium to large size. Teachers in the Research schools rated the OLSEL intervention very positively, indicating that it "filled in gaps" that had been left by their pre-service teacher-education and subsequent in-service education, and was easily transferred into their everyday practices with children.

[1] These subgroups were naturally occurring, as a result of logistical and resource constraints over the life of the study. They did not differ significantly on demographic or educational dimensions.

The findings reported here lend weight to the growing body of evidence that reading instruction should adhere to psycholinguistically robust principles. Bearing in mind the relatively modest cost of the intervention itself, and the fact that these schools were specifically targetted because of their low-SES profiles, these findings are particularly notable. Notwithstanding some inevitable methodological challenges associated with conducting research in schools, the OLSEL Project appears to have been delivered as intended and provides an excellent template for future studies of this nature.

Important questions arise from this study, and should be a focus of vigorous discussion and ongoing research, most notably –

1. To what extent will the children who were in OLSEL Research schools maintain a reading and / or oral language skills advantage that has clinical (i.e. "real world") importance over the remaining primary-school years and beyond?
2. To what extent will the children who were in OLSEL Research schools display stronger school attachment and retention as a result of their early gains in oral language and reading skills?
3. Which aspects of the OLSEL intervention are critical to its success and provide the most value-adding to children's outcomes?
4. Will changes in teacher performance be sustained and continue to manifest in improved reading and oral language performance of children in the classrooms?

Successfully making the transition to literacy in the first three years of school is a matter not only of achieving pre-determined benchmarks on isolated measures of skill. It has profound and long-lasting effects on educational engagement, academic success, school retention, and the ultimate attainment of marketable employment skills. As such, it is a period in a child's life that demands the highest standards of rigour with respect to the educational approaches and classroom practices employed. The OLSEL Project has made a significant contribution to the body of knowledge about "what works", particularly for those children whose risk of academic achievement is already compromised, by virtue of their socio-economic status.

List of Abbreviations

AEDI – Australian Early Development Index

CECV – Catholic Education Commission of Victoria

EMA – Education Maintenance Allowance

OLC – Oral language competence

PLA - Professional Learning Activity

RCT – Randomised controlled trial

RPT - Reading Progress Test

SEIFA – Socio-Economic Indices For Areas

SES – Socio-economic status

SLI – Specific Language Impairment

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Conflict of Interest

My role in the OLSEL Project has been that of "critical friend". I have not been involved in the day-to-day conduct of the study, have not visited any of the school sites and have not collected, transcribed, nor in any other way managed the data that has been made available to me for review and analysis in the preparation of this report.

Background and Review of the Literature

This report is concerned with oral language competence (OLC) in the early years of school, and its importance for the transition to literacy. "Oral language" refers to the various skills in both speaking and auditory processing (listening) that begin to emerge in the first two years of life, and continue to evolve across the life-span. The most rapid and dramatic developments in speaking and listening skills occur in the first five years of life. This means that when children typically enter school around age 5 or 6, they have an expressive (spoken) vocabulary of around 2,600 words, but may understand well over 10,000 words (Owens, 1996). However OLC demands much more than simply acquiring a "meaning" system (i.e. vocabulary). As Tomblin (2005) has observed, children must also acquire grammatical rules for creating an infinite range of novel utterances, as well as employing complex and often subtle conventions pertaining to social and contextual aspects of an interaction.

In most Western countries, including Australia, the first three years of school have a significant emphasis on making the transition to literacy – being able to read fluently and for understanding, and being able to produce text of one's own through hand-writing and / or use of word-processing software. It has been observed (Berko Gleason, 1993) that while learning to speak is a task for which humans are generally well biologically prepared (assuming adequate levels of interaction with others and exposure to the spoken word), learning how to read and write is a social construction derived from humans' motivation to record information and experiences. Children require specific instruction in order to become proficient readers and writers, and this sets the task apart from OLC. Successfully making the transition to literacy has particular relevance in developed societies, in which educational and vocational opportunities are tightly yoked to academic outcomes. It is very difficult to succeed academically in the context of inadequately developed literacy skills, and it is not surprising therefore, that low levels of academic attainment, early school-leaving, and an absence of marketable employment skills aggregate strongly in adulthood and increase the risk of social marginalisation (Snow, 2009).

In addition to advances in expressive and receptive vocabulary, the first five years of life also sees important developments in the child's ability to share their experiences with

others via the medium of *narratives*. Narratives form an important part of everyday life, as they are the means by which people tell each other stories about events that have taken place. Narrative development is supported by scaffolding from key adults in the child's world, as well as exposure to written texts that teach the broad "template" for logical and coherent information transfer. One such template is *story grammar*. According to Stein and Glenn (1979), a well developed narrative comprises seven logically sequenced story grammar elements (a setting, an initiating event, an internal response, a plan of action, an attempt at action, direct consequences of this action, and protagonists' reactions). In emphasising the developmental importance of the narrative genre, Hedberg and Stoel-Gammon (1986) have observed that individuals who lack adequate story grammar skills "….will have difficulty reconstructing their own experiences and sharing them with others" (p.68). The role of narrative discourse as a tool by which speakers must both describe characters and events and explain reasons for protagonists' actions has also been stressed by Vallance, Im, and Cohen (1999). These workers observed that language difficulties may not become apparent until the speaker "…..is required to respond to an unfamiliar topic or formulate answers to specific questions in extended discourse, especially when the answers are expected to be complete and fully explained" (p. 702).

A number of factors can threaten the acquisition of early oral language skills, including, but not restricted to various combinations of

- The presence of sensory impairments, particularly hearing loss (whether sensori-neural and / or conductive in origin);
- Relatively high-prevalence developmental disabilities such as intellectual impairment, autism spectrum disorders, cerebral palsy, Fragile X syndrome;
- Being reared in a low-socio economic status family environment, in which the amount of language to which children are exposed will be significantly less than that to which children of well educated parents are exposed (Hart & Risley, 1995);
- Being exposed to maltreatment (abuse and / or neglect) in the early years (see Snow, 2009)

Some of the above factors are clearly obvious and may have been identified at, or soon after birth. Others, such as exposure to socio-emotional neglect, however, are not readily

apparent and may be misdiagnosed as other developmental disorders, may be attributed to uncooperativeness or unwillingness on the part of the child to engage in the classroom, or may be missed by key adults altogether. Unfortunately, teachers are not always well-equipped by their training to identify children whose oral language skills are compromised and may place them at-risk educationally (Antoniazzi, Snow, & Dickson-Swift, 2010). Such children (particularly boys) are, however, at risk of experiencing difficulties making the transition to literacy in the early school years, and of being identified as a result of problematic externalising (i.e. disruptive to others) behaviour in the classroom environment. Sadly, such children are often there-after characterised by key adults in their world as "behaviour problems", without any specific assessment of their language abilities being undertaken (Cohen, Menna, Vallance, Im & Horodezky, 1998).

While some children enter school with clearly identified speech /and or language disorders[2], many have hidden "subclinical" deficits that are not readily apparent to the adults in their world. Such children may have a working, albeit superficial grasp of everyday conversational scripts that enable them to "get by" in most social exchanges, however they are not skilled at sharing their experiences via the medium of language.

It was noted in the report of the 2005 *National Inquiry into the Teaching of Literacy* (Department of Education, Science and Training), that irrespective of a child's SES disadvantage (and subsequent low starting point) on school entry, evidence-based approaches to reading instruction should ensure that "significant positive effects on student achievement progress" occur (p. 12). This report also concluded that teacher education about evidence-based approaches to reading instruction is highly uneven, thus it is critical, at both pre-service and in-service stages of their careers that this be redressed. The study described in this report represents an important step forward in this endeavour. It must be emphasised that learning to read is not simply a mechanistic task of decoding text and turning it into speech. While reading fluency is an important measure of reading competence, the child's *comprehension* of that text has an overarching significance for

[2] "Speech" refers to the mechanical aspects of using the tongue, lips, teeth and other articulatory mechanisms to produce sounds that form words as they are conventionally pronounced in a given language or dialect. "Language" refers to knowledge and use of word meanings, grammatical forms, in order to produce and understand an infinite range of novel utterances, as a basis for social and informational exchanges.

academic success. Teachers and curriculum planners need to bear in mind the "Matthew Effect" (Stanovich, 1986), a biblical reference to the notion that "the rich get richer, and the poor get poorer". Applied to the acquisition of reading, this axiom holds that children who enter school having already achieved key psycholinguistic milestones such as the knowledge that words can be segmented into smaller component parts, (sounds and syllables), will be more readily equipped for the challenges of reading and writing. Those who arrive at school with yet to be developed skills in these domains will not, however be ready for an exclusive focus on learning how to read, particularly if this is at the expense of further opportunities to strengthen oral language competencies that will from the basis of the transition to literacy.

Language difficulties in childhood have several comorbidities, most notably Attention Deficit Hyperactivity Disorder (ADHD), Behaviour Disorders (e.g. Conduct Disorder and Oppositional Defiant Disorder), and Autism Spectrum Disorders. Behaviour difficulties are sometimes referred to as *externalising* disorders, because they manifest to the outside world, and cause disruption to others. Externalising disorders are more common in boys and stand in contrast to *internalising* disorders, such as anxiety and depression, which are more common in girls, and often go unnoticed in the classroom environment because they do not disrupt the lives of others (Achenbach, 1966). As a number of workers have observed (Cohen, Menna, Valance, Im, Horodezky, 1998; Snow & Powell, 2004), the presence of behaviour difficulties in primary-school aged children can "blind-sight" adults to the existence of other difficulties (e.g. underlying but undiagnosed language difficulties), to the ultimate detriment of the child's ongoing development and educational attainment.

By the time children enter their fourth year of schooling (in most Western educational systems, including Victoria's where this study was conducted), they must deal with a subtle but important shift in the classroom – from *learning to read* to *reading to learn.* Children who have not mastered the basics of literacy by this time are unfortunately often doomed to longterm struggle and ambivalence (if not frank hostility) towards school. While much has been written and debated in the last twenty years about childhood Specific Language Impairment (SLI);, including its implications for academic success (see Conti-Ramsden, Durkin, Simkin & Knox 2008 for recent review) it is likely that many children enter school

with impoverished and / or uneven development in their expressive and receptive language abilities, such that for all intents and purposes they have a *Non-Specific* Language Impairment. Such children will encounter particular struggles with the transition to literacy.

Children do not enter school with equal levels of readiness to learn and with equal levels of development with respect to the pre-requisites for academic success. A range of factors, most notably parents' socio-economic status, have a significant influence on the child's emotional, behavioural, and cognitive readiness for the demands of the early-years classroom environment. In the United States, Hart and Risley (1995) have shown that by age 3, children of professional parents were hearing on average 2,153 words per hour, compared to the 616 words per hour being heard by children of parents on welfare benefits (with the children of working-class parents sitting in between these two extremes and hearing an average of 1,251 words per hour). More recently, the Australian Early Development Index (AEDI) has provided a geographically (and hence SES-based) mapped "snapshot" of children's early development at school entry, across five key domains: Physical health and wellbeing - Social competence, Emotional maturity, Language and cognitive skills (school-based), and Communication skills and general knowledge. These dimensions were selected because of their associations with health and well-being in childhood and beyond. As may be seen, language / communication competence is strongly represented in these domains, underlining its importance for early academic success and for overall school attachment. This emphasis on language competence in early life, together with an emphasis on evidence-based approaches to literacy instruction, is central to the rationale underlying the OLSEL Project. It is also consistent with increasing calls for more rigorous and evidence-based interventions to occur early in life, at critical developmental periods when they are most likely to be beneficial (e.g., Heckman & Caneiro, 2003).

This Report provides an overview of the OLSEL Pilot Project, together with an evaluation of the effectiveness of the interventions carried out, possible longterm effects of the interventions (for both teachers and students), limitations of the project, and implications for policy, practice, and further research. This Report should be read alongside

the detailed Progress Reports submitted by the Catholic Education Commission of Victoria (CECV) during the course of the project, and will not replicate all of the detail included in those reports. Additional information is also available on the Project website – www.olsel.catholic.edu.au The focus therefore of this report will be comparing students' performance at the end of the study, with that at its commencement.

Study Aims and Rationale

The OLSEL Project sought to determine whether a strategic and explicit emphasis on early OLC in the Prep, Grade 1 and Grade 2 classrooms of low-SES schools would confer identifiable and sustainable benefits on both the oral language skills and the literacy skills of children in those settings. The views and experiences of key school personnel (classroom teachers and school principals) about the intervention were also sought.

Hypothesis

It was hypothesised that an explicit focus on teaching the oral language skills required within existing curriculum work units would result in gains in the students' oral language competence as well as significant gains in their early reading abilities.

Method

Ethics Approval

The study was approved by the Monash University Standing Committee on Ethics in Human Research (now known as the Monash University Human Research Ethics Committee), and assigned approval ID CF09/0073 - 2009000026.

Research Approach

A mixed-methods approach was used in this Pilot Project. Within an overall cluster semi-randomised controlled trial methodology, pre and post-intervention data were collected, using both quantitative and qualitative data collection and analysis methods. With respect to children's performance on standardised oral language and literacy measures, data comprised numeric scores that will be presented in this report via appropriate descriptive and inferential statistics. For the exploration of expert stakeholder views, however, in-depth interviews were conducted until theoretical saturation was reached, and verbatim transcripts of this qualitative data was analysed thematically, in

order to reliably indentify recurring issues and perspectives. Data from rating scales completed by teachers will be summarised and presented descriptively across time points. It is a widely held view in social science research that mixed-methods approaches such as these provide the best coverage of data sources (Sarantakos, 1998). The use of mixed methodologies also enables data triangulation to be used, so that confidence in the accuracy of the findings can be enhanced (Minichiello, Fulton & Sullivan, 1999).

A cluster semi-randomised controlled trial (RCT) methodology was employed as the overall design of the study. RCTs are widely regarded as the most rigorous methodology for evaluating the effectiveness of new interventions (Dawes et al., 1999), as they offer the highest level of protection against common threats to internal validity (e.g. bias in the allocation of participants to experimental or control conditions, such that important variance at baseline is not randomly, and therefore equally distributed across groups / sites). Establishing cause-effect relationships between an intervention and an outcome is important for both epistemological and economic reasons. Many interventions appear on "face value" to both lay and expert observers, to be efficacious and therefore worthy of support. Sometimes interventions are endorsed because of ideological or political support, however the use of rigorous research methodology is the only means of providing adequate control against threats to internal validity that may result in false positive or false negative findings. External validity concerns the extent to which the findings can be generalised to other groups of school students that are similar with respect to important demographic characteristics (e.g. the socio-economic status [SES] of parents and proportions of students from indigenous backgrounds).

It should be noted that while the use of single and / or double-blinding is an additional protection against threats to internal validity in experimental research, this is not always possible, because it is sometimes impossible to conceal from participants which intervention they are receiving. In the case of the OLSEL Project, it was obviously not possible to conceal from teachers and principals the group into which their school had been allocated. For resource reasons, it was not possible to employ blinded researchers who were naïve about school study-allocation when assessments were being conducted. Sample sizes were estimated from discussion with experts in the field about probable effect

sizes, with consideration to the project budget. Samples of approximately 300 per study arm were considered sufficient to detect at least moderate effects of the intervention, while still allowing for some inevitable attrition from the project.

In this evaluation report, effect sizes will be noted where possible on final measures. Effect size coefficients (Cohen's *d*) provide an indication of the impact of an intervention or variable on the outcome measure. Consistent with the normal descriptions in social and educational research, effect sizes of 0.2 or less will be described as small, coefficients approaching 0.5 will be described as moderate with effect sizes of 0.8 or greater described as large (Durlak, 1998). For further descriptive purposes, effect size coefficients of 0.5 and greater may also be described as being educationally significant even though a lower figure has been recommended by other researchers (Wolf, 1987).

Recruitment of Schools and Allocation into Study Groups

A multi-stage sampling process was employed in the study. Following calls for Expressions of Interest purposively distributed by the CECV to low SES schools across the State of Victoria, 14 schools were recruited into the study. Eight schools were semi-randomly allocated into the intervention cluster, and six into the control cluster. Details of these schools and the Dioceses to which they belong can be obtained from Project Pilot Progress Reports provided to DEEWR during the life of the project. Once schools had been recruited into the study, Explanatory Statements and Consent Forms were distributed to parents / guardians of randomly selected students, as well as to early-years teachers (saturation rather than random sampling was used for this group), in order to recruit participants into the study. Only students whose parent / guardian provided written consent for their inclusion took part. Replacement sampling was used in instances where a parent / guardian did not provide consent. Those children who did not have parent / guardian consent for their inclusion completed all classroom activities and assessments, however their assessments were not included in the project evaluation.

Baseline assessments of students' oral language and reading abilities were carried out in April-May 2009, with the final post-intervention assessments of the students' abilities occurring in October / November 2010. Interim assessments were performed in February /March, 2010.

Recruitment of School Staff: Teachers and Principals

Like the parents and students, teachers (and later principals) were approached by a member of the OLSEL research team and invited to take part in the study. In the initial phase of the project, 20 teachers participated (n=14 in Research Schools, and n=8 in Control Schools). Twenty (i.e. 91%) of the teachers participated in the follow-up phase (n=14 in Research Schools, and n=6 in Control Schools). Two teachers were lost from Control sites because they moved to different schools.

Measures Employed

Reading and oral language measures

The assessments undertaken with the students included a standardised measure of reading skills - The Reading Progress Test (Vincent, Crumpler & de la Mer, 2004), which examines four key domains: phonological awareness, print concepts, word knowledge and cloze comprehension. Australian norms are available for this measure. Measures of oral language ability included the Picture Vocabulary and Grammatical Understanding subtests from the Test of Language Development: Primary – Fourth Edition (Newcomer & Hammill, 2008); Semantic and grammatical analysis of a narrative retelling – The Renfrew Language Scales Bus Story Test (Renfrew, 1997); Selected subtests from the Sutherland Phonological Awareness test- Revised (Neilson, 2003). Tasks were selected for their psychometric rigour, their use in similar research studies, and their familiarity to school-based and school support staff. Personnel experienced in assessing early years students completed all testing undertaken for the project. These personnel included speech-language pathologists and teachers and all were involved in a training program to ensure consistency in adherence to manual guidelines in the administration of the test items.

In summary, the following constructs were assessed via standardised measures:

1. Receptive semantics
2. Receptive grammar
3. Expressive semantics
4. Expressive grammar
5. Phonological awareness
6. Reading skills

Staff Perspectives – Quantitative and Qualitative Data

Teachers in Research and Control Schools were asked to complete a brief questionnaire (See Appendix) at each of the three data collection points across the study. This questionnaire employed a Likert-type rating scale to seek teacher views and experiences about addressing children's oral language competence in the classroom. Two teachers in each study school were also asked to take part in an in-depth interview about their experiences addressing oral language competence in the classroom. This interview was audiotaped for later transcription and thematic analysis.

Principals of the eight Research Schools were also asked to complete a brief 1:1 interview with a member of the research team at the conclusion of the Project, in order for them to share their impressions about the OLSEL program, from both an educational and organisational perspective.

The probes for these interviews were developed through consultation within the research team, and are included as an Appendix in this report. Interviews with teachers were audiotaped, after which they were transcribed verbatim, and analysed for recurring themes. Interviews with teachers were conducted in July/August of 2009 and again in October 2010.

The Intervention

A teacher-focussed Professional Learning Program was developed, derived from a review of the relevant literature and consultation with experts in the field. This was carried out over four days in early 2009, one day in late 2009, and one day in early 2010 (i.e. 5 days in total).

The Professional Learning Activity

Staff from the research schools attended the first four days of the Professional Learning Activity (PLA) entitled "Oral Language Supporting Early Literacy" in March and April 2009. Approximately 100 school personnel attended each session, 54 from the eight research schools. Ms Judy Connell, Catholic Education Office Melbourne provided an introduction to the project and outlined its context and rationale. Dr John Munro (EdAssist) then presented the first two days of the program while Mr Hugh McCusker (Lewis & Lewis Australia Pty

Ltd) presented on days 3 & 4 with support from Ms Lisa Decker and Ms Catherine Morrissy (Speech-Language Pathologists, Catholic Education Office Melbourne – Western Region). Staff from the research schools included early years' classroom teachers, literacy coordinators and two deputy principals with groups of between five and seven teachers attending from each of the schools. All principals attended the briefing session conducted by Ms Judy Connell. At this time, the project rationale was outlined and principals were also provided with information about AEDI data for their municipality. A 5th day of the PLA followed in October 2009, where staff at Research schools shared their experiences to date and received support from a member of the OLSEL project team on how to prepare a School Action Plan for developing OLC. Two principals attended all five days of the PLA.

As part of the Professional Learning Program, participants became familiar with a framework for oral language learning developed by Dr John Munro (Munro, 2005) known as *ICPALER*. This acronym represents the following language elements:

I – Ideas (vocabulary / sentences / discourse / topic)

C – Conventions (phonological / grammatical / genre)

P – Purposes (manage and direct / listen and speak between the lines / adjust to context and audience / use language for different goals)

AL – Ability to Learn (opportunity to learn language / ability to perceive oral language / ability to use symbolism / ability to link ideas / ability to conceptualise and categorise / ability to sequence and order / ability to generalise learning to other contexts)

The **ER** component of the acronym refers to presence of these elements in both the students' expressive language (production) and receptive language (comprehension). Participants became increasingly familiar with the elements of oral language outlined in the model and were provided with strategies for the application of the framework both when observing and assessing students as well as when identifying and implementing appropriate teaching activities.

Participants were also introduced to the Collins, Brown & Newman (1989) *Model of Teaching and Learning*. This model has six elements of instruction, three of which are the responsibility of the teacher and three that are the responsibility of the learner. The

presence of each of the elements is viewed as necessary for effective teaching and learning interactions to take place. The elements of the model are as follows:

Responsibility of the Teacher:

Modelling: The teacher models the actual task and how it is to be completed

Scaffolding & Fading: The teacher provides cues to assist the student to complete the task.

These cues occur less often and are faded out as the student is increasingly able to complete the task independently.

Coaching: The teacher guides, prompts and provides feedback as the student engages in the task.

Responsibility of the Learner

Articulation: Students explain what they have learned (i.e. knowledge / process strategy) and describe when they can use what they have learned.

Reflection: Students reflect on what they have learned, focusing on identifying what they know now, that they did not know before

Exploration: Students are encouraged to consider how they can use what they have learned (i.e. knowledge / process strategy) in new tasks and contexts.

Participants were introduced to models of questioning that can be used to improve student oral language competence, e.g. that proposed by Blank, Rose and Berlin (2003), which has been shown to enhance reading comprehension outcomes (Hay, Elias, Fielding-Barnsley, Homel, & Freiberg, 2007). This approach contains the following levels:

> Level 1 Directly Supplied Information (student develops a range of vocabulary items)
>
> Level 2 Classification (student learns to organise or classify the vocabulary)
>
> Level 3 Re-organisation (student re-organises the information learned based on what they already know)

Level 4 Abstraction and Inference (student reflects on and restructures their knowledge)

OLSEL school leaders in the research schools have enrolled in a University of Melbourne Masters level unit (*460 735 Oral Language Learning: The Primary Years*). The convener of this unit was Dr John Munro and it commenced in July 2009.

Following attendance at the OLSEL Professional Learning Program, staff teams in each of the eight Research schools worked to develop their plans to implement teaching initiatives focused on enhancing student literacy outcomes via oral language activities. Support to school staff in the development of implementation plans was provided by CECV staff including School Advisers, Education Officers, Curriculum Consultants and Speech Pathologists. Examples of the types of actions and activities carried out in each of the Research schools (as reported by participating staff) are listed in Box 1 below:

Box 1: Examples of oral language activities undertaken by schools

- Improving the quality of language interactions during "Big Book" activities.
- Targetting story re-telling, using full sentences as well as asking and answering a wide range of "W" questions (e.g. "who", "why", "when" etc)
- Strengthening of phonological awareness activities based on the text being read (e.g. via onset-rime awareness, blending and segmentation)
- Cueing students to use thinking time and to "tune into the topic"
- Discussion about characteristics of "good listening"
- Introduction of questioning techniques in teaching and learning interactions
- Ensuring students respond in sentences and use increasingly appropriate listening skills
- Providing students with "think time" before responding
- Use of activities specifically targetting vocabulary extension by facilitating awareness of synonyms and antonyms
- Making increased use of the Blank, Rose and Berlin (2003) questioning rubric
- Providing "helpful hints" and suggestions regarding oral language activities to parents to support oral language learning in the home
- Dramatising and demonstrating word meanings
- Employing listening and following directions activities
- Teaching 'Memory Games' that encourage oral language

Results

This Evaluation Report will focus on two large subgroups derived from the initial sample of 1145 students who entered the study. The first comprises the 489 (of an initial pool of 577) students who completed both pre and post measures concerning both oral language and reading skills. Findings pertaining to a further large subgroup (n=568 across Research and Control schools) who received the Reading Progress Test (RPT) at both pre and post intervention points (but no oral language assessments) will also be considered. This latter group will be referred to in this Report as the "Reading Measure Only" subgroup. Unless otherwise specified, results pertain to the subgroup of 577 who initially underwent both reading and oral language testing. Just over 84% (n=489) of these students were re-tested at the conclusion of the Project. Table 1 summarises the breakdown of student allocations across groups and year levels, over the life of the OLSEL Project.

Table 1: Numbers in each group and each year level across the course of the study who received both the reading and oral language measures at both pre and post testing.

	Prep 2009	Yr 1 2009	Yr 1 2010	Y2 2010	% Attrition
Research	135	150	117	135	13.7
	Total = 285		Total = 252		
Control	128	164	113	143	16.8
	Total = 292		Total = 256		

As may be seen in this Table, slightly more students were lost to follow up in the Control schools than in the Research schools. The impact of attrition is explored further below.

Comparability of Study Group Demographic Characteristics at Baseline

Low SES schools[3] were purposively targeted in the sampling frame for the pilot, given that this was the population of interest for the DEEWR funding round in question. The mean Socio-Economic Indexes for Areas (SEIFA) ranking of the Research schools was 87.63 (SD=2.8), and the mean SEIFA ranking in the Control schools was 90.17 (SD=2.1). This difference was not statistically significant (t=-1.7; p=.11). In order to gain a more refined sense of the SES status of participating children, however, receipt of the Educational Maintenance Allowance (EMA) was also used to identify students likely to be particularly economically disadvantaged. The EMA is provided by the State Government to support the student's education. Parents or legal guardians who are eligible beneficiaries under the *Victorian State Concessions Act 2004*, i.e. are holders of Veterans Affairs Gold Card, an eligible Health Care Card, or Pensioner Concession Card, can access this financial support. In addition, foster parents are eligible to apply for an EMA. In the Research schools, 78 (10.1%) of students were in receipt of the EMA, as compared to 58 (12.1%) in the Control Schools. Raw numbers in each category across the study groups are displayed in Table 2 below:

Table 2: EMA Status x Study Group Cross Cross-tabulation

		Study Group		
		Research	Control	Total
EMA Status	EMA NO	203	226	429
	EMA YES	89	84	173
	Total	**292**	**310**	**602**

Twenty-eight percent (28%) of the group as a whole were in receipt of the EMA. A Chi^2 test suggested that this distribution differed significantly across the study groups (Chi^2= 108.8 $p<0.05$), with more EMA students in Research schools than in Control schools.

[3] The Australian Bureau of Statistics (ABS) Socio-Economic Indexes for Areas (SEIFA) Index of Education and Occupation (IEO) was used as a basis for selecting low SES schools for inclusion in the pilot.

The proportion of children in each study group in receipt of Disability funding (Literacy, Numeracy and Special Learning Needs Program, funded by the Commonwealth Government) is shown in Table 3. Only 4.5% of the sample overall was in this category, and a Chi2 analysis did not indicate a significant difference in proportions of such students across study groups.

Table 3: Disability Funding x Study Group Cross tabulation

		Study Group		
		Research	Control	Total
Disability Funded	NO	282	293	575
	YES	10	17	27
	Total	**292**	**310**	**602**

(Chi^2= .54; p = ns)

A small minority (2.5%) of student were from an Aboriginal / Torres Strait Islander (ATSI) Background is shown in Table 4. A Chi^2 analysis did not indicate a significant difference in proportions of students from such backgrounds across study groups.

Table 4: Indigenous Status x Study Group Cross tabulation

		Study Group		
		Research	Control	Total
Indigenous Status	Non-ATSI	283	304	587
	ATSI	9	6	15
	Total	**292**	**310**	**602**

(Chi^2= .54; p = ns)

Just over one fifth (21.4%) of the sample was from a Language Background other than English. The proportion of children in each study group who were from such backgrounds is shown in Table 5. A Chi^2 analysis did not indicate a significant difference in proportions of students from such backgrounds across study groups.

Table 5: English Language Background x Study Group Cross tabulation

		Study Group		
		Research	Control	Total
ESL Status	English	225	248	473
	LBOTE	67	62	129
Total		**292**	**310**	**602**

(Chi^2= .54; p = ns)

Comparability of Study Groups on Language and Literacy Measures at Baseline

Table 6 displays descriptive and inferential data pertaining to standardised oral language and reading scores measures at Baseline. The only significant difference that remained after control for an increased Family-wise error rate (by using the more conservative p-value of 0.005 to reflect the number of comparisons being made) was on the Reading Progress Test Scores, on which the students in Control Schools performed significantly better than those in Research Schools.

Table 6: Baseline comparisons of Research and Study Schools on Oral Language and Reading Measures (standard scores).

	Study Group	n	M	SD	t	p*
TOLD Picture Vocabulary Standard Score	Research	292	9.1	2.8	.696	ns
	Control	310	9.2	2.7		
TOLD Syntactic Understanding Standard Score	Research	292	9.6	2.6	.57	ns
	Control	310	9.6	2.4		
SPAT Syllable Counting	Research	292	2.8	1.3	-.17	.244
	Control	310	2.9	1.3		
SPAT Blending	Research	291	2.3	1.7	-.24	.017
	Control	310	2.6	1.6		
SPAT Onset Identification	Research	291	3.3	1.3	-.02	.98
	Control	310	3.28	1.3		
SPAT Final Phoneme Identification	Research	292	2.4	1.6	-2.04	.042
	Control	310	2.7	1.6		
SPAT Phoneme Segmentation 1	Research	291	1.8	1.7	-.420	ns
	Control	310	1.9	1.7		
SPAT Phoneme Segmentation 2	Research	291	.80	1.3	.823	ns
	Control	310	.72	1.2		
SPAT Subtests Total	Research	292	13.2	6.5	-.14	ns
	Control	310	14.0	6.4		
Reading Progress Test Standard Score	Research	285	91.2	14.2	-2.9	.003**
	Control	292	94.7	14.1		

*p values reported at 0.05 level (Bonferonni adjustment for multiple comparisons yielded an adjusted p-value of .005)
** This was the only comparison that was significant at the adjusted alpha level of 0.005

Narrative Language Scores at Baseline

Narrative samples were analysed with respect to a range of syntactic, semantic and story grammar dimensions. Table 7 displays descriptive and inferential statistics pertaining to selected key Narrative discourse variables. As can be seen in this Table, there

was some unevenness across groups at baseline with respect to narrative competence, but there was not a clear picture suggesting that one group was more competent overall with respect to this oral language skill.

Table 7: Narrative Discourse descriptive and inferential data at Initial Assessment

	Research		Control			
	M	**SD**	**M**	**SD**	**t**	**p***
Number of T-Units	13.9	4.6	12.1	4.9	4.7	.000
Words per T-Unit	5.9	1.3	5.9	1.3	-.37	.706
Incomplete T-Units	2.0	1.6	2.0	2.0	-.37	.71
Clauses per T-Unit	1.6	.15	1.1	.15	1.5	.135
Story Grammar [4] Total	4.6	3.0	5.5	3.2	-3.7	.000

*two-tailed p-values

Post-Intervention Between-Groups Comparisons on Reading Measures

Tables 8 and 9 display final scores for both study groups on Reading and language measures, while Table 10 displays the mean percentage gain achieved by both groups on the Reading Progress Test over the life of the Project.

Table 8 Reading Progress Test Standard Scores – Initial and Final for both Research and Control schools: Descriptive and inferential data

	Study Group	**N**	**M**	**SD**	**t**	**p**	**d**
Reading Progress Test Initial Standard Score	Research	285	91.2	14.3	-2.95	.003	-.25
	Control	292	94.7	14.1			
Reading Progress Test Final Standard Score	Research	252	105.9	14.6	3.1	.002	.27
	Control	256	101.9	14.6			

[4] Analysed according to Story Grammar guidelines published by Snow and Powell, (2004)

Table 9 Reading Progress Test Standard Scores – Percentage Gain for both Research and Control schools: Descriptive and inferential data (n=489)

	Study Group	n	M	SD	t	p	d
Reading Progress Test Gain	Research	246	15.0	12.6	6.7	.000	.60
	Control	243	7.3	12.8			

As may be seen in these Tables, although the Research schools "came from behind" on Reading Progress Test scores at the outset of the study, by its completion, students in the Research schools appear to have made significantly greater gains in this domain, compared with their peers in Control Schools.

A further 568 students (n= 424 in Research Schools and n= 144 in Control Schools) completed Reading Progress Test assessments at both initial and final stages of the project, but did not receive the oral language assessment tasks. As noted earlier, this subgroup will be referred to here as "Reading Measures Only"). Table 10 displays the descriptive and inferential statistics pertaining to these students' initial and final RPT scores, as well as their percentage gain in RPT scores over the life of the project. As may be seen, students in Research schools achieved significantly higher RPT scores at the end of the project and had made significantly more gain over the life of the project. The large standard deviations in both groups suggest wide within-group variability however.

Table 10: "Reading Measures Only" subgroup - Descriptive and inferential statistics pertaining to initial and final RPT scores and percentage gain

	Study Group	n	M	SD	t	p*	d
Reading Progress Test Initial Standard Score	Research	424	92.4	12.5	-6.2	.54	
	Control	144	93.2	13.1			
Reading Progress Test Final Standard Score	Research	424	102.8	13.6	1.6	.058	.14
	Control	144	100.7	14.8			
Reading Progress Test - Percent Gain (%)	Research	424	10.4	12.5	2.4	.008	.21
	Control	144	7.5	12.2			

*one-tailed p-values

Reading Outcomes for Students from Disadvantaged Backgrounds

Specific examination of the reading gains made by students from particularly disadvantaged backgrounds (as operationalised by EMA status) showed significantly greater gains for these students, notwithstanding the within-group variability suggested by the high standard deviations. The results are displayed in Table 11 below. It should be noted too that these subgroups differed significantly at baseline, with those in the Control schools performing better than those in Research schools. This makes the gain at end of the Project particularly noteworthy.

Table 11: Reading Progress Test Standard Scores and Percentage Gain for EMA students in both Research and Control Schools: Descriptive and inferential data (n=164)

	Study Group	n	M	SD	t	p*	d
Reading Progress Test Initial Standard Score	Research	89	86.2	13.2	-3.0	.003	
	Control	75	92.9	15.6			
Reading Progress Test Final Standard Score	Research	78	103.1	13.3	.89	.19	.21
	Control	63	101	15.1			
Reading Progress Test - Percent Gain (%)	Research	78	16.2	12.1	3.8	.000	.66
	Control	58	8.3	11.7			

*two-tailed p-values

Although the differences were not statistically significant, it was noted that the sub-sample of students in the "Reading Measures Only" sample who were EMA-funded (n=173; of whom 131 were in Research schools and 42 in Control schools) achieved higher scores on both final RPT scores and percentage gain over the life of the project. The same was the case for children from language backgrounds other than English (some of whom would also have been EMA-funded – i.e. they are not completely orthogonal subgroups).

Oral Language Outcomes

Table 12 displays the descriptive and inferential statistics on oral language measures at pre and post assessment periods for the Research and Control school students. Using a modified alpha level of $p<.005$ (to control for Family-Wise error rate with multiple comparisons), significant differences are evident on five of these measures, with clear trends evident on all others.

Table 12: Oral Language Standard Scores at final re-assessment

	Study Group	n	M	SD	t	p*	d
TOLD Picture Vocabulary Standard Score	Research	254	10.6	2.4	2.6	.0045	0.23
	Control	266	10.0	2.4			
TOLD Syntactic Understanding Standard Score	Research	254	11.0	2.5	5.0	.000	.46
	Control	266	9.9	2.3			
SPAT Syllable Counting	Research	254	3.5	.84	1.5	.065	.06
	Control	266	3.4	1.0			
SPAT Blending	Research	253	3.7	.71	1.4	.085	.13
	Control	266	3.6	.81			
SPAT Onset Identification	Research	254	3.9	.23	3.3	.0005	.24
	Control	266	3.8	.52			
SPAT Final Phoneme Identification	Research	254	3.8	.62	1.6	.06	.14
	Control	266	3.7	.72			
SPAT Phoneme Segmentation 1	Research	254	3.5	1.0	1.5	.065	. 18
	Control	266	3.3	1.2			
SPAT Phoneme Segmentation 2	Research	254	2.2	1.5	3.3	.0005	. 33
	Control	266	1.7	1.5			
SPAT Subtests Total	Research	254	20.6	2.9	3.5	.000	. 30
	Control	266	19.6	3.7			

*one-tailed p-values reported

A series of within-group paired t-Tests was conducted in order to examine change over time in students' oral language and reading skills as a function of group membership (research or control).

As can be seen in Table 13, while students in both groups improved over time on all parameters (as would be expected in an educational setting over a two-year period), the extent of the differences within the Research schools was noticeably greater than that indentified in Control schools (as indicated by the magnitude of the t-scores). This suggests an important "value adding" on top of normal development and instruction as a result of

being in a Research site. This value-adding effect was particularly evident on Reading Progress Test scores.

Table 13: Within Group Pre and Post Comparisons on Standardised Language Measures and Reading performance.

	Paired-Samples t-score	**p**
Research Schools		
TOLD Picture Vocabulary Initial – Final	8.0	.000
TOLD Syntactic Understanding Initial – Final	8.5	.000
SPAT Total Initial –Final	19.3	.000
Reading progress Test Initial - Final	18.7	.000
Control Schools		
TOLD Picture Vocabulary Initial – Final	4.4	.000
TOLD Syntactic Understanding Initial – Final	1.9	.059
SPAT Total Initial –Final	15.7	.000
Reading progress Test Initial - Final	8.9	.000

Table 14 displays descriptive and inferential statistics pertaining to selected key Narrative discourse variables at Final assessment (Between-Groups Comparisons).

Table 14: Narrative Discourse descriptive and inferential data at Follow-up Assessment

	Research		Control				
	M	**SD**	**M**	**SD**	**t**	**p***	**d**
Number of T-Units	16.9	4.1	17.5	3.4	1.5	.07	-.16
Words per T-Unit	6.9	1.2	6.6	1.1	2.3	.01	.26
Clauses per T-Unit	1.3	.16	1.2	.13	2.1	.02	.68
Incomplete T-Units	.58	1.2	.59	1.0	.06	.47	00
Story Grammar Total	9.3	3.2	9.3	2.8	-.14	.44	00

*one-tailed p-values

As may be seen above, words per T-Unit[5] and clauses per T-Unit appeared to differentiate the groups at follow-up, with a trend evident on number of T-Units. A within-groups analysis showed that significant change on all narrative parameters occurred in both groups over the life of the project. For both groups, the largest change occurred in overall story grammar scores.

Attrition

Figure 1 displays the stages of the project in terms of recruitment and retention across the stages. As can be seen in this Figure, there was an overall retention in the Project of 489 (of an original total of 602. i.e. 81.2%) students across study groups who received a full set of reading and oral language assessments at two time points (initial and final).

[5] A T(or Terminal) Unit is a syntactic unit that is approximately equivalent to a sentence. A clause is the smallest grammatical unit that can express a complete proposition. T-Unit analysis enables quantitative evaluation of the degree of syntactic complexity (a marker of developmental maturity) present in spoken and written texts.

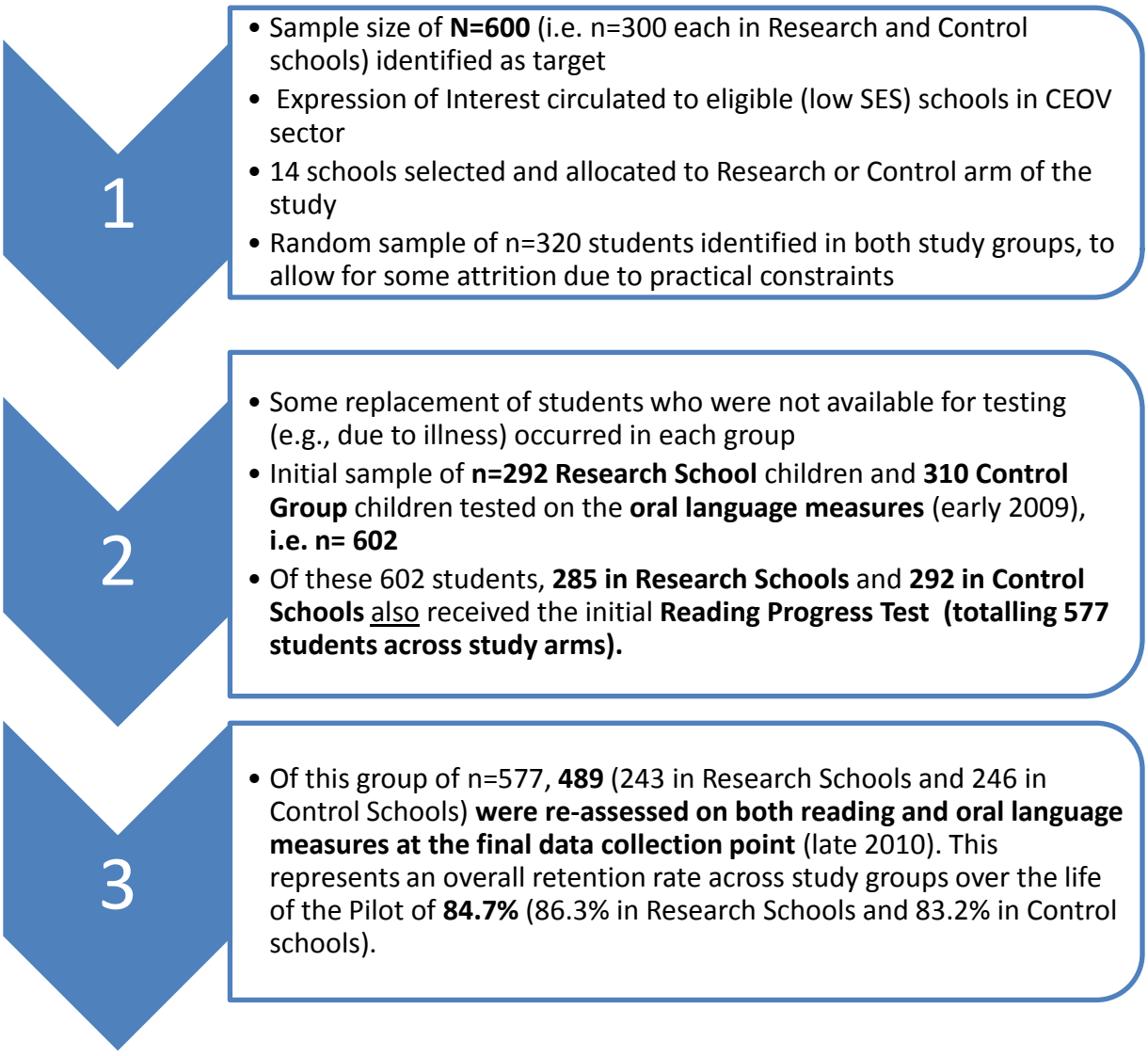

Figure 1: Flow Chart summarising recruitment and attrition over the life of the study (NB this chart excludes the "Reading Measures Only" subgroup introduced on p.25).

The primary reason for attrition was students having left the school at which they were enrolled at the outset of the study, while a small number were not available to be tested because of absence due to illness or family vacations.

Given the potential distortion of impact introduced by attrition in study designs such as the one used here, an Intention-To-Treat analysis (Montori & Guyatt, 2011; Hollis & Campbell, 1999), was performed on students' literacy abilities at the pre-assessment phase. Similar proportions of students were lost from both the Research and Control school sites

with no significant changes to relevant demographic profiles (i.e. gender, SES status or LBOTE status). Results of an independent t-test to determine whether significant differences existed on entry literacy abilities (as measured on Reading Progress Test scores), between those who left the study and those who were retained, are contained in Table 15.

Table 15: Comparison of Pre-Intervention Literacy Abilities of Students who left the Project

	Study Group	n	RPT Mean	SD	t	p*
Prep – Year 1	Research	21	88.1	14.1	-1.9	.053
	Control	24	96.3	13.5		
Year 1 – Year 2	Research	18	97.1	16.9	1.23	.224
	Control	25	90.6	16.9		
Total	Research	39	92.3	15.9		
	Control	49	93.4	15.4	-3.45	.73

*2-tailed p-values reported

As can be seen from these findings, there were no statistically significant differences between the entry reading abilities of the Research school students and the Control school students who subsequently left the Project. Given this similar level of ability, it was viewed that continued analysis of the findings from the reduced sample would provide a valid description and overview of the Pilot Project outcomes.

Although no formal data collection was undertaken regarding possible contamination across arms of the study, there was some anecdotal evidence that some teachers in Control schools accessed the OLSEL website during the life of the study, and one Control school received OLSEL-related PD from a Speech-Language Pathologist during the study.

Teacher and Principal Perceptions of the Pilot

Twenty-two (22) teacher interviews were carried out at the outset (n=14 in Research Schools and 8 in control Schools) and 20 were repeated at the conclusion of the Project (with the loss of 2 teachers from Control schools who had moved elsewhere). In Research

schools, the modal years experience in the Prep-Grade 2 setting was 11+ years and in Control schools, this was three-five years.

Teacher Feedback: Quantitative Data

In October 2009, n=47 teachers (from Research sites) completed Likert-type scales to indicate their confidence with presenting and undertaking oral language activities in their classrooms, together with their perceptions of the impact of their school's participation in the OLSEL Project. Copies of the instruments are included as Appendices to this Report. As may be seen from the summary data displayed in Table 16, on 5-point scales, where 5="very high" (i.e. the most positive rating), there seems to have been an upward shift in teacher ratings over time.

Table 16: Teacher Ratings on Knowledge, Confidence and Impact of the Program.

Teacher Ratings: October 2009. Self-reported Knowledge (n=47)		
	Mean	**Range**
Current level of confidence in identifying and implementing OLSEL based teaching strategies that have enhanced learning outcomes for students	3.75	3 – 4
Level of confidence in further identifying and implementing adapted teaching and learning practices in your school based on the OLSEL Professional Learning Program	3.50	2 - 4
Teacher Ratings October 2010. Self-reported Knowledge (n=4)		
	Mean	**Range**
Current level of confidence in identifying and implementing OLSEL based teaching strategies that have enhanced learning outcomes for students	4.00	2 - 5
Level of confidence in further identifying and implementing adapted teaching and learning practices in your school based on the OLSEL Professional Learning Program	4.02	3 - 5

Table Continues next page…….

Teacher Ratings (Involved in OLSEL in 2009 & 2010) October 2010 Self-reported Knowledge (n=35)		
	Mean	**Range**
Current level of confidence in identifying and implementing OLSEL based teaching strategies that have enhanced learning outcomes for students	4.15	4 - 5
Level of confidence in further identifying and implementing adapted teaching and learning practices in your school based on the OLSEL Professional Learning Program	4.09	3 - 5
Teacher Ratings (Involved in OLSEL in 2010 Only) October 2010 Self-reported Knowledge (n = 9)		
	Mean	**Range**
Current level of confidence in identifying and implementing OLSEL based teaching strategies that have enhanced learning outcomes for students	3.44	2 - 4
Level of confidence in further identifying and implementing adapted teaching and learning practices in your school based on the OLSEL Professional Learning Program	3.78	3 - 4

Teacher Perceptions: Qualitative Feedback

Further insights regarding teachers' awareness of oral language competence and its links to literacy were sought via the use of in-depth interviews, across both Research and Control sites. Interviews were also used to explore the extent to which teachers felt they were able to consider the oral language demands inherent in their teaching and learning interactions in their classrooms. Probes used to form the basis of each interview are presented in the Appendix to this report.

Twenty-two (n=22) interviews were completed during Terms 2 & 3, 2009 (14 with Research school teachers and 8 with Control school teachers). Each interview was then transcribed and analysed thematically, in order to identify key issues evident in teachers' perceptions and experiences.

Key themes identified in the interview data have been detailed in Progress Reports during the life of the study, and have been reviewed but not re-analysed for the purpose of this evaluation. These themes are broadly summarised below:

Table 17: Qualitative data derived from teacher interviews: Thematic Summary

Theme / Issue	Description
Teacher assumptions and challenges to these	• Students have sufficient oral language competence to cope with the demands of most teaching and learning activities. • Teachers have increasingly become aware of gaps between students' presumed and actual knowledge, e.g. *They can appear to be that way but their skills are not as good as what they are giving out.* • Oral language development was simply facilitated from the interactions that occurred without the need for targeted and explicit teaching, e.g. *oral language probably didn't take a big focus; in a sense, it just happened / with the preps, you expected most of them or the majority to follow / you didn't really take it right back and untangle it.*
Assessment and Referral	• Uncertainty about how to assess oral language abilities, e.g. *..I probably need to have some basis of what I'm actually looking for or I'm trying to achieve but I haven't got to that point.* • Referral and then direction from external support staff (e.g. speech pathologist/ special education consultant) is required to adequately meet student needs.
Student monitoring	• It is important that teachers can monitor student progress and can make good sense of existing assessment tasks. • Continued reservation about the use of informal observation approaches as being sufficient to determine adequate student progress. • Teachers in the Research schools reported increased confidence in observing students' language interactions, but would like some formal measure to confirm observations.
Underpinning role of OLC	• For teachers in both the Research and Control schools, OLC was seen as a key ability that underpins literacy learning. • Teachers in the Research schools spoke to the role of OLC in all classroom learning, and seemed to be drawing on the PD Program in doing so e.g. *...you come away from college and you know there's the reading part and the writing part and there's oral language ... here's our oral language timetabled in our week but maybe that show and tell session is where we did our conscious assessment and observations. I*

	think now it's just gone; it's all day every day/ all the teachers are much more aware of how important it is and they have also become more aware of how much we took for granted.
Knowledge transfer from PD to the classroom	• Teachers from the Research schools commented on the challenge of taking strategies and activities learned in the OLSEL program and adapting them for use in the classroom. Prioritising which one(s) to initially introduce was key here – i.e. identifying which would have the greatest impact on student learning.
Depth	• A strong reflection of many Research school teachers was that their teaching had greater depth with the focused oral language interactions, e.g. *they have to be able to think it and say it in order to write it / I'm much more aware of how to say things and the level of questioning has been a lot different as well. I am getting a lot more use out the Big Book / we did kind of cover some aspects of the OLSEL Program in a roundabout way bit I would say it was raking it over rather than getting the shovel out if that makes sense.*
Pre-School preparation for OLC	• Teachers in both the Research and Control schools highlighted a view that students entering school were presenting with weaker oral language skills than in previous years. This was seen as an important target for future efforts e.g. *Students need to be "language learning.* No specific recommendations were made re ways of addressing this.
The role of OLC in assisting student thinking	• A number of teachers in the Research schools commented on the role oral language plays in enhancing student approaches to thinking. This reflected the important on developing student self-talk which was a component of the OLSEL Professional Development Program. • Teachers in the Research schools described a broader role for oral language competence beyond conversational interaction. They highlighted it as a critical tool used by effective learners.
Student Gains in response to the OLSEL Intervention	• Research school teachers commented on initial gains in the students' listening behaviours and their oral language use. In part, this was felt by some to reflect more informed observations of student oral language interactions, e.g. *I suppose the big thing that has struck me in the last couple of weeks is that the children are starting to use the language that I've been giving them / … even some children who wouldn't normally respond are now responding a bit more / the students are a lot more interested in the book. When it's their own reading time they will get the book and they might have a little chat about it so it's generating a lot more interest in the kids and they probably have a greater appreciation of the big books.*

Changes in teaching practices	• Teachers in the Research schools commented on changes to the nature of their teaching and learning interactions with students. They reported being more focused on taking opportunities to expand oral language use rather than simply accepting students' initial responses. This was felt to reflect the teachers being increasingly confident about being able to allocate more time to oral language activities and discussion, e.g. *I didn't do it explicitly; I knew it was part of what we had to record on but I didn't plan for it / it's funny how when you do something in a new way it's hard to remember the old way that you did it and I know now what I'm doing well in terms of getting the students to give me what I'm saying and tuning in better at the start of my lessons.*
Team Development	• Attendance at the OLSEL Professional Development program and the subsequent expectation of school-based implementation was seen as a positive influence on team planning and development, e.g. *I didn't mention our planning, our inner planning .. it's a lot more purposeful.*
Knowledge Gain and New Ways of Thinking	• Teachers who attended the OLSEL Professional Development Program commented positively about the learning they had gained from the program. The amount of information presented was acknowledged as being significant, in itself creating some initial difficulties with the implementation, e.g. *we came away from it thinking "wow, now what do we do"? So we have just taken one thing and we are just working on one thing.* • One key learning highlighted by some of the Research School teachers was the need to consider oral language within the teaching and learning interaction - something which was not a component of their undergraduate training experiences, e.g. *It didn't exist. It really wasn't part of learning and there was not much emphasis put on it all. Now, I'm turning the corner. I can see the real value of it now.*
Accommodating new practices in the classroom	• Teachers in the Research schools commented on the increased time involved in specific activities with the focused oral language discussion. Literacy activities (e.g. Big Book use) were now taking two or three more days to complete. While there was an acceptance of this due to the perception that enhanced learning would be achieved, there remained an element of concern about this impact on work unit planning, e.g. *Now on top of that, if I am taking longer to do things through my oral language development, I think that is a real issue.*

Feedback from Principals

Table 18 below summarises the quantitative ratings derived from (Research school) principals' reflections on the benefits of their staff's involvement in the OLSEL Project. As can be seen, principals rated the program and its benefits very positively.

Table 18: Research school principals' perceptions of the OLSEL intervention

Statement	Mean Rating (1-5)
Overall , how valuable would you rate the involvement of your Staff and Students in the OLSEL Research Project ? (1= Not Valuable 3 = Valuable 5 = Very Valuable)	5.0
To what degree do you perceive your staff's involvement in the OLSEL Project has impacted positively on classroom teaching and learning? (1= Limited Impact 3 = Some Impact 5 = Strong Impact)	5.0
To what degree do you perceive your Staff has gained professional knowledge relevant to classroom teaching and learning? (1= Limited Gain 3 = Some Gain 5 = Significant Gain)	5.0
To what degree do you perceive the quality of professional planning being undertaken by your Staff has improved due to their involvement in the OLSEL Research Project? (1= Limited Improvement 3 = Some Improvement 5 = Significant Improvement)	4.33

Examples of qualitative comments made by Research school principals included the following:

- *I am thrilled with the way OLSEL has impacted our staff and most importantly our students. It has highlighted an important area of the curriculum and our staff have certainly benefitted from the program.*
- *We will be training our new teachers and some Gr 3/4 staff through diocesan PD. We intend to implement OLSEL throughout the school. We have also made it a major part of our Literacy Support programs.*
- *The OLSEL journey has been challenging, frustrating, stimulating, invigorating and rejuvenating. It has affirmed and refined teaching praxis which directly empowers and supports quality teaching and learning experiences. All of our junior children have benefitted and we are excited by the next challenge of embedding and sustaining*

OLSEL into our normal curriculum delivery, within the "All Kinds of Minds" Response to Intervention framework.

- *I would strongly recommend CECV (sic) systemic involvement in on-going longitudinal action research and I believe these learnings will eventually translate to pre-service teaching courses.*
- *From the initial input of OLSEL, staff were immersed and experienced positive results in their classrooms. PLT's have become more focussed. Awareness has been raised in all staff of the importance of language – of children having the tools and being able to express themselves. Support through the project to the coordinator and to staff has been very effective and appropriate. Our results gave us reason to celebrate and challenge to go further.*
- *As Principal, the greatest value I've seen is a cohort of staff having PD together over an extended period with excellent support from experts. This has enhanced the professional knowledge of the teachers.*

Discussion

This report details the design, delivery, and evaluation of an innovative evidence-based approach to improving literacy outcomes in the first three years of school, in the context of socio-economic disadvantage. A quasi cluster-randomised controlled trial methodology was used, with pre and post measures of children's oral language skills and reading abilities. Qualitative data was derived from interviews with teachers and principals who participated in the study. Overall, the results suggest clear and positive advantages (for both OLC and literacy skills) for those children in Research schools, when compared with those in Control schools, receiving "standard practice" in the early years classroom environment. As far as possible, the schools and their students were considered to be comparable at baseline, thus strengthening the confidence with which changes at follow-up can be attributed to the intervention. While all of the schools were, by definition, in low-SES areas, students from particularly disadvantaged backgrounds were identified via the proxy measure of receipt of the EMA. In addition to the overall between-groups differences at the study's conclusion, it was notable that such students appear to have experienced a particular "value-adding" on their literacy skills as a result of their participation in the OLSEL Program, as indicated by significantly greater gains over this time period. Teachers and principals reflected positively on their experience of the OLSEL Program, with many teachers identifying the immediate "transferability" of knowledge and skills acquired in the OLSEL PD Program to their own classroom environments. Irrespective of their theoretical rigour and the weight of scientific evidence in their favour, interventions that teachers do not judge as both meritorious and "do-able" in their classroom, will not be implemented as intended, and will not translate into sustained change in educational outcomes.

The findings reported here lend support to existing evidence regarding (a) the oral language basis for the transition to literacy and (b) the importance of timely receipt of appropriate instruction methods (Catts, Fey, Zhang & Tomblin, 1999; Dickenson, McCabe, Anastasopoulos, Peisner-Feinberg & Poe, 2003; Freiberg et al., 2005; Greenfield Spira, Storch Bracken & Fischel, 2005; Hay et al., 2007). Spira et al make the important observation that "…children's level of reading achievement is determined early in their school experience….By third grade, the level of reading ability that children have attained is

likely to remain relatively stable; it is difficult to escape a pattern of failure that has lasted through a large part of elementary school" (p. 233).

Some particular observations on the importance and implications of this Pilot Project are warranted:

Translational research is the most difficult to do, especially in schools – which have complex ecologies and many variables over which it is almost impossible to gain rigorous control for research purposes. In medical and pharmacological circles, it is possible to conduct "efficacy" trials ahead of "effectiveness" trials, with an expectation of some dilution of effect from the former to the latter. This is not the case in schools, however, where researchers must accommodate many variables (some known, others probably not) over which they have little or no control. Hence the findings reported here are particularly noteworthy given the consistency of effects and their magnitude.

It is reasonable to expect an emphasis on oral language skills to translate into change on measures of OLC. What is noteworthy in these findings is the evidence that this emphasis also permeated reading skills – this not only lends support to the methodology and approach employed here, but provides further theoretical support for the importance of reading instruction approaches that are psycholinguistically sound. This means employing approaches to instruction that build on evidence regarding the psycholinguistic knowledge children need in order to make the transition to literacy, e.g. phonological processing and phonemic awareness. As noted earlier in this report, the acquisition of oral language skills in early childhood has strong biological substrates (assuming normal experiences and exposures), however learning to read is a somewhat more unnatural task, being a social contrivance and a manifestation of thousands of years of human civilization.

Oral language competence is important in its own right, for its contribution to the formation and maintenance of interpersonal relationships and the two-way exchange of ideas and needs in a myriad of everyday contexts. It is not simply a "hand-maiden" to literacy. For this reason, gains made through improved instruction approaches are likely to confer wide-ranging benefits that cannot necessarily be easily captured on standardised testing. In a practical sense, however, it is currently much easier for teachers to assess the

literacy skills of children in their classroom, employing user-friendly paper-and-pencil tasks that can be administered to large numbers of children simultaneously. Oral language competence does not lend itself to this kind of "en masse" assessment and is not a developmental skill that teachers are adequately equipped to assess. These are challenges that require urgent attention, at both the pre-service and in-service levels for early years teachers. It is also to be hoped that in the future, benchmarks for oral language competence can be developed that stand alongside those that already exist for reading competence.

The characteristics of the students for whom this pilot approach appeared effective

This Pilot Project was carried out in schools that were considered (on the basis of SES data) to be "disadvantaged". In addition to relatively high proportions of students receiving an EMA, the study schools also had significant representation of students from language backgrounds other than English. The fact that statistically and clinically significant treatment effects were found within and between groups as a consequence of the OLSEL intervention suggests that, in keeping with its robust psycholinguistic basis, the OLSEL approach should be effective for *all learners*, regardless of SES status. The representation of Indigenous children in the project was modest (reflecting in large part the geographical location of the study schools), however it is reasonable to hypothesise that such children will stand to derive particular benefit from this approach, given its developmental basis and the likelihood that such children will enter school without the oral language competencies in English that are required to make the transition to literacy via English-language instruction.

The Sustainability, Transferability and Efficiency of the Pilot

The ease with which teachers and school leadership staff embraced the OLSEL Project is clearly evident in both the quantitative and qualitative data presented in this report. School staff rated the OLSEL Professional Learning Activity as both interesting and immediately applicable in their classroom environments. A number of teachers commented on their inadequate prior preparation for promoting oral language competence in the classroom and saw the knowledge and skills they acquired as a "missing link" in their classroom practices. Given that the OLSEL intervention required only 5 days of teacher professional development, it stands to be a readily transferable approach. It was beyond the scope of the

current Pilot to examine sustainability, however this is a question that should be pursued, e.g. through follow-up interviews with OLSEL teachers in 12-24 months time to determine the extent to which they report ongoing implementation of OLSEL practices. It is notable that a number of teachers from Control schools in the current Pilot have requested access to the OLSEL Professional Learning Activity suggesting that teachers themselves have commented favourably about the intervention to their peers. A factor that should promote the sustainability and transferability of the intervention is the ease with which noticeable benefits manifested in children's skills over the life of this project. A key issue that needs to be addressed with respect to sustainability, however, is the extent to which the types of approaches examined in the OLSEL Project are taught at undergraduate levels to student teachers. It is not efficient to "back-fill" classroom practice at the in-service level if appropriate instruction is not being provided at the pre-service level – as was reported by a number of teachers who participated in this study. This is a question that requires vigorous examination and debate.

Support and Maintenance of Trained Personnel

It is important that staff who have been trained in a new approach receive ongoing support in order that they maintain their knowledge and skills and can act as mentors to others in their school / region. Such support needs to be evident from the highest levels of the sector (as has been the case with the OLSEL Project) and needs to translate into dedicated professional development and fidelity-checks on actual classroom practice. Teachers also need to be given feedback on the performance of children in their class, relative to that of others in similar SES contexts, so that reflective practice can be fostered and continuous modifications to classroom practice can be implemented. Expectations regarding the types of classroom practices that should be used need to be explicit, so that teaching approaches that are evidenced-based, rather than ideologically-based are employed.

Barriers / Challenges to Implementation

These have largely been covered elsewhere in this report. The major barrier to the implementation of a new approach is change-resistance at an organisational level. The Catholic Education Commission of Victoria has, however led this project via both "top-

down" and "bottom-up" strategies aimed at promoting teacher engagement in and ownership of the intervention, and is to be commended on doing so.

Strengths of the Pilot

Key strengths of this Pilot are the fact that it was based on psycholinguistically sound models of literacy instruction in the early years, and employed a control group as a way of guarding against over / mis-interpretation of the findings. Another key strength is that the effects demonstrated of the intervention were evident both on measures of oral language competence and on measures of reading skill. This suggests a genuine "value-adding" on the usual educational experiences of students from low-SES backgrounds. The extent to which such advantages could be conferred on children from a range of backgrounds is worthy of closer examination, as reading difficulties occur across all SES strata and translate into significant educational distress and under-achievement. As noted above, conducting research in schools is enormously challenging, given the number of variables over which researchers cannot exert control. The low attrition rate, together with adequate control to ensure that this did not bias the findings, is another strength of the Pilot.

The natural history of children's language and literacy skills, under typical circumstances, is that they will develop noticeably in the timeframe of a study such as this. Interventions therefore need to value-add what normal development and classroom experience can offer, and the current findings suggest that the OLSEL Pilot delivered on this dimension.

Limitations of the Pilot

A number of factors should be considered alongside the apparent strengths and effectiveness of the OLSEL Project and these are listed below:

There was some unevenness at baseline with respect to proportion of students from particularly disadvantaged backgrounds (as measured by receipt of EMA allowance), and this group should be a particular focus of future investigations, given growing interest in social marginalisation as both a precursor to, and an outcome of, early language difficulties.

Because of the wide range of activities undertaken within and across the schools, it is not possible to determine from this Pilot whether some activities are particularly valuable,

while others have a lesser role to play in enhancing children's OLC and literacy skills. More refined analyses will be needed in the future, in order to determine which activities should be emphasised, and which ones should be modified or even omitted from classroom activities specifically targetting OLC.

While teachers' self-reports about their level of confidence in focusing on oral language skills in the classroom were pleasing, it must be noted that *confidence* and *competence* do not necessarily go hand-in-hand. In fact, the former, in the absence of the latter, can bode poorly for student outcomes and for teacher receptiveness to innovation in pedagogical practices. Thus future investigations should examine changes in teachers' theoretical orientation and skills, focusing on the extent to which changes are sustained and translated into altered classroom practices. In future studies, teacher impressions should be sought from research staff who are not aligned to the project, in order to ensure that social desirability bias in teacher reporting is minimised. Actual observations of classroom practice were not carried out in this study, however these are important for determining the fidelity with which a new intervention is being implemented, and also afford opportunities to make observations of "unexpected" phenomena, e.g. the way a child or group of children responds to a particular teaching approach. Years of teacher experience may also have had an influence on the findings, particularly the slightly better representation of teachers with more experience in the Prep-Grade 2 setting in Research schools than in Control settings. However this influence could work either way in relation to the findings; greater experience may mean that teachers have a more intuitive sense of the importance of oral language competence for early literacy, but it is also reduces the likelihood of their exposure to any shifts towards greater emphasis on OLC than may have occurred in pre-service curricula in recent years.

Narrative language skills are difficult to assess reliably, thus equivocal findings on this variable may reflect more on measurement difficulties than on actual effectiveness of the intervention with respect to this oral language skill. This should be a subject of further investigation.

In study methodologies such as the one employed here, there is always a possibility of "contamination" from Research schools to Control schools, e.g. via regionally-based contact

between teachers, and it is not possible to determine how much the practice of teachers in Control schools may have been subtlely influenced via such contact, and / or via open access to the OLSEL website. There was some anecdotal evidence that some Control school staff were exposed to some aspects of the intervention during this Pilot, and this needs to be considered alongside the weight of evidence as to its effectiveness.

It is not possible to determine the extent to which the gains made in Research schools will persist over time and translate into improved educational trajectories and outcomes. This needs to be a focus of future investigations. Further, in spite of their receipt of the OLSEL intervention, some children will still fall behind developmental targets with respect to OLC and/ or reading skills and it is vital that they be identified early and provided with appropriate support services.

Recommendations for Policy and Practice

Evidence-based practice has a clearly established role in the health sciences (at both population and clinical levels) and is promoted in part by equipping pre-service practitioners with skills in understanding and critiquing research methodology. Interventions such as the one reported here reinforce the importance of enshrining in policy, empirically-based approaches to language and literacy instruction in the early years. It is also vital that in their pre-service education, teachers learn about different approaches to reading instruction and the relative weight of research evidence underpinning them. Teachers should also be equipped, in the same way that health professionals are, with the necessary skills to appraise new evidence and consider its role in changing classroom practice. Appropriate early reading instruction is just as important for life-long achievement and adjustment as early immunisation programs are for physical health. Providing evidence-based instruction approaches at a developmentally appropriate time in children's lives is far preferable (educationally and economically) to providing piecemeal intervention services "down the track" (Heckman & Caneiro, 2003), often when secondary complications, such as mental health and other adjustment difficulties have begun to surface.

Recommendations for Further Research

The most pressing indication for further research arising from this Pilot is the need to follow-up the children who were in the OLSEL Research schools, in order to examine their educational trajectories (academically and in terms of school attachment, self-esteem, social connectedness etc) relative to those who did not receive the intervention. If the gains reported here translate into identifiable benefits that persist into the middle years, this will add a compelling weight of evidence to the approach undertaken in this Pilot. Other issues requiring further investigation include a detailed analysis of components of the intervention and their relative contribution to the outcomes, together with ongoing tracking of teacher satisfaction and the extent to which they perceive that new skills have been embedded in their classroom practices. Actual case-studies of classroom practice in early-years settings should also be conducted, in order to examine the fidelity with which new practices are being implemented.

Summary and Conclusions

As Sénéchal (2005, p. 1) has observed, "Successful and full participation in Western societies presupposes that individuals know how to derive meaning from written texts". As with other aspects of child development, there are critical developmental windows during which responsiveness to language and literacy instruction seems to be particularly apparent. For this reason, and because of the foundational role of literacy in all aspects of academic and vocational achievement (and hence economic well-being across the life-span), every opportunity must be taken in the early school years to promote the transition to literacy. Studies from around the world of socially marginalised adolescents clearly show an aggregation of reduced oral language competence, low literacy levels, and early school detachment (e.g. Sanger, Creswell, Dworak, Schultz, 2000; Snow & Powell, 2008; Bryan, Freer & Furlong, 2007). The first three years of school cast a long shadow with respect to academic attainment and social inclusion, and must be a time of rigorous and sustained delivery of evidence-based approaches to language and literacy instruction in the classroom. Oral language skills are critical in their own right as a basis for social competence, and also underpin the transition to literacy.

The study described in this report demonstrates that in return for a modest of investment of teacher, school, and sector time, substantial gains can be made in both the oral language and reading skills of children who are living and being educated in low SES communities. Such value-adding on normal classroom experience stands to strengthen their academic attachment and achievement, and thus to avert some of the adverse outcomes that accompany school failure. Modest academic effects early in life may well translate into much larger *cumulativ*e effects on "downstream" variables such as school retention and mental and emotional well-being, over time. Outcomes such as mental health problems (internalising and externalising), reliance on welfare and public housing, and / or engagement in crime and other forms of anti-social activity are socially and economically costly, and are not easily modified. Although conceptualised as a language and literacy intervention, projects such as OLSEL need to be positioned as *public health interventions*, given the benefits they stand to confer on children's lives. Notwithstanding the need to follow-up these children and examine the extent to which benefits are maintained over time, the findings to date lend support to the hypothesis that strengthening oral language in the classroom (via teacher professional development) does, indeed, strengthen early literacy.

Level of education has profound implications for health and social inclusion across the life-span. At a global level, the evidence is clear that improving educational outcomes improves health (e.g. Gakidou, Cowling, Lozanzo & Murray, 2010), however there are critical periods in which certain interventions (e.g. appropriate reading instruction) are more likely to be beneficial, and these need to be maximised in order to promote the best possible life trajectories for all young people.

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APPENDICES

Teacher and principal questionnaires
Probes used in 1:1 teacher interviews

ORAL LANGUAGE SUPPORTING EARLY LITERACY RESEARCH PROJECT
REFLECTIONS ON PROJECT INVOLVEMENT – OCTOBER 2010 (TEACHERS)

Please rate your current level of confidence in identifying and implementing OLSEL based teaching strategies that have enhanced learning outcomes for students

1	2	3	4	5
Very Low	Low	Neutral	High	Very High

Comments: _____

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Please rate your level of confidence in further identifying and implementing adapted teaching and learning practices in your school based on your involvement in this OLSEL professional learning initiative

1	2	3	4	5
Very Low	Low	Neutral	High	Very High

Comments: _____

_____

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Overall, rate the value of having been involved in the OLSEL Research Project and Professional Learning Program

1	2	3	4	5
Not Valuable		Valuable		Highly Valuable

Comments: _____

_____

_____

What have been the impacts of your school's involvement in the OLSEL Research Project during 2009 and 2010 in relation to ....?

Your theoretical knowledge about oral language and literacy acquisition

_____

_____

_____

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_____

Your teaching practices and those of your colleagues

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The working of the Professional Learning Team

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Students' learning and classroom participation

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What are strategies you will be looking to implement within your school to achieve the following:

- **Sustaining what has been learned from the project; and,**
- **Further strengthening the links between oral language and literacy learning both for current and future students.**

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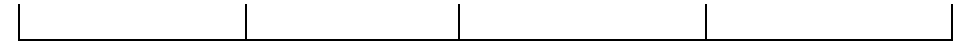
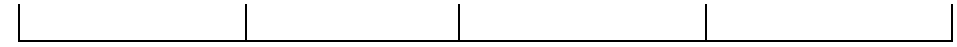
ORAL LANGUAGE SUPPORT EARLY LITERACY RESEARCH PROJECT
REFLECTIONS OF SCHOOL <u>PRINCIPALS</u>

Overall, how valuable would you rate the involvement of your Staff and Students in the OLSEL Research Project?



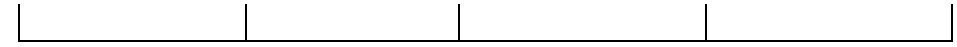
1 2 3 4 5
Not Valuable Valuable Very Valuable

To what degree do you perceive your Staff's involvement in the OLSEL Project has impacted positively on classroom teaching and learning?



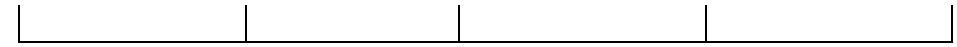
1 2 3 4 5
Limited Impact Some Impact Strong Impact

To what degree do you perceive your Staff has gained professional knowledge relevant to classroom teaching and learning?



1 2 3 4 5
Limited Gain Some Gain Significant Gain

To what degree do you perceive the quality of professional planning being undertaken by your Staff has improved due to their OLSEL Project Involvement.



1 2 3 4 5
Limited Improvement Some Improvement Significant Improvement

What elements of the OLSEL Initiative do you feel have most supported your Staff to implement the program at your school? (Please tick the three most important)

____ The OLSEL professional development program

____ The OLSEL website

____ The focused planning within the PLT

____ The ongoing school-based support from CEO and Project Staff

____ The involvement in the postgraduate course at University of Melbourne

____ The collegial discussion with teachers from other schools

To maintain a focus on implementing the OLSEL initiative within your school, list two or three actions you intend undertaking in 2011.

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Concluding Comments

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Name: _____ ___ Date: _____

Probes used for Teacher 1:1 Interviews

- How do you incorporate activities in your teaching that focus on enhancing the oral language competence of your students?
- When considering introducing a new work unit to the students, how do you identify the oral language knowledge needed to learn and understand what is to be taught?
- How much time in your average lesson is focussed on enhancing oral language links to literacy?
- How do you currently monitor the oral language competence of your students?
- How does your awareness of the oral language demands of a work unit influence your teaching approach?
- How does your awareness of the oral language competence of your students influence your teaching approach?
- What is the average period of time in your class involved in focussed oral language discussion?

How confident are you about the quality of the oral language involved in teaching and learning interactions in your classroom?