

CENTRE FOR
SOCIAL SCIENCE RESEARCH

Social Surveys Unit

**THE LEARNING FOR LIVING
PROJECT, 2000 – 2004: A BOOK-
BASED APPROACH TO THE
LEARNING OF LANGUAGE IN
SOUTH AFRICAN PRIMARY
SCHOOLS**

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The Learning for Living Project 2000 – 2004: A book-based approach to the learning of language in South African primary schools

Abstract

The Learning for Living Project was implemented over five years in 957 primary schools in all nine provinces of South Africa. The intervention embodied a book-based approach to the learning of English as a second language and was based upon a modified book flood model utilizing the supply of materials supported by in-service training as well as extensive classroom monitoring. A total of 13 164 teachers were supplied with a total of 4 002 103 individual books of different types – a mean of 304 per teacher. In addition, each teacher received a mean of 9.6 INSET courses and 6.9 monitoring visits. The project cost R153 million for a total of 875 000 learners yielding a per capita cost of R175 per learner over the whole five year project, including project staff salaries and administration. The project was externally evaluated through the use of a quasi experimental design that longitudinally tracked true cohorts of randomly selected learners in project and control groups drawn from a sample of 90 schools. The resulting data has a precision of just over 1% at a confidence level of 95% - mean scores of the project and control groups were virtually equivalent at baseline (-0.5% difference in relation to the project mean). All of the components of the sample measured significant impacts in the project group over the controls in literacy – Cohort One +6.9%, Cohort Two +3.4%, Grade Five +7.6% and Grade Seven +7.7%. There is a 100% certainty that these impacts were achieved as a result of the book-based approach to the learning of English as a second language applied by the Learning for Living Project. That similar impacts in mathematics were not obtained suggests that poor inputs and outcomes in mathematics exist independently of the language in which it is learned.

Background to the Project

The Learning for Living Project (LFL) was designed and operated over a five year period between 2000 and 2004 by the READ Educational Trust in all nine provinces. In total, 957 primary schools participated in the LFL with 13 164 teachers and an estimated 875 000 learners. The project received R153 million in funding from the Business Trust (BT) and was implemented with the support and cooperation of the National and Provincial Departments of Education (DoE).

The fundamental motivation for the project was the need to improve the quality of the outcomes of South African schooling. While much had been achieved since the watershed year of 1994 in terms of increased access to schooling, the establishment of more equitable provisioning norms for schools and the introduction of a new curriculum in 1998, much remained to be done in terms of improving the quality of the outcomes of the education system.

In conceptualizing the intervention programme READ, the Business Trust and the Department of Education acknowledged that the areas of literacy and language were critical to achieving this goal in a multilingual country in which the great majority of School Governing Bodies and parents have opted for the use of a second language, almost always English, as the Language of Learning and Teaching (LOLT) in Intermediate Phase (Grades 4 to 6) and beyond. Furthermore, the adoption of a national language policy in which the mother tongue was to be used as the LOLT in Foundation Phase (Grades 1 to 3) imposed on the overriding need for learners to become sufficiently proficient in English by Grade 4 to make any form of education in this language feasible. It is clearly very difficult for young learners to switch from mother tongue and to learn a second language at the same time as they are expected to learn all the other subjects in this language. That all of the materials provided to schools for these other subjects are in English underscores the point. On this note, the adoption of the new Outcomes Based Education curriculum in 1998 created significant problems in that the materials with which schools were supplied prior to that year were not written in terms of the new curriculum. As a consequence, schools were seriously undersupplied with materials appropriate for the new curriculum and the provision of a great number of learning materials by the LFL was another important factor in its adoption.

Objective, Theoretical Basis and Design of the Intervention

In the original proposal to the Business Trust, READ provided a general statement of the objectives of the LFL:

“The project will aim to provide a measurable, sustainable and cost-effective programme in the learning area of Language, Literacy and Communication...This project, while focusing on the acquisition of reading, writing and cognitive skills will also facilitate effective integration of all the learning areas, to ensure adoption of cross-curricular, skills-based teaching and learning. This will in turn impact on learners’ outputs by increasing abilities to demonstrate outcomes (knowledge, skills, values and attitudes), and on teachers’ abilities to deliver the new methodology more effectively.”

Learning for Living was essentially an application of the well-established READ Primary Schools Programme that had achieved significant learner impact in South Africa in previous smaller-scale studies (Schollar 2001). The intervention programme applied in the LFL was based on a significantly modified ‘book flood’ approach (Elley 1998) which predicts that extensive and regular exposure to literature will help children learn English as a second language more quickly and effectively than other methods. The ‘book flood’ approach has achieved significant success in a number of countries where English as a second language is used as the medium of instruction - especially in Asia.

The modification of this approach in the LFL consisted of the provision of very much more extensive INSET and classroom support than is usual to augment the supply of books and other materials, along with the addition of a small management training component. This modification was based on READ’s concept of the Balanced Literacy Programme.

A Balanced Literacy or Language Programme is variously interpreted but in the National Literacy Strategy implemented in the UK in the 1990’s it is used to describe the combination of the two main instructional approaches to the teaching of reading, namely the Whole Language (Goodman 1986) and traditional phonic-based approaches, with both top-down and bottom-up elements so that children learn to decode text and also make meaning from emergent reading levels. However a Balanced Language Programme has also come to be associated with a particular range of strategies or methodologies, namely Shared Reading and Writing, (Holdaway 1979) Word and Sentence

Level Work (First Steps Programme, UNICEF, 1999), Group and Guided Reading (Pinnell 1998), Independent Reading and Writing and Modelled Reading (Reading Aloud), which are combined into an holistic language and literacy instructional strategy used in Australia in the 1980's. (Queensland, Victoria). It links to the Book Flood in the centrality of authentic text to the strategy ensuring that the text is the starting point of all reading instruction.

A Balanced Language Programme is underpinned by interactive/neurological theories of reading (Rummelhart 1977) which contend that in order to read fluently and with understanding learners need grapho-phonetic knowledge (knowledge of phonics and sight words), syntactic knowledge (knowledge of the language in which they are learning to read) and semantic knowledge (general knowledge) so that they can predict and then confirm meaning as they read.

The project design assumed that significant impact upon learner performance would be achieved through the delivery of a comprehensive, cumulative and sustained programme with three major components:

- INSET for both classroom teachers and for senior school managers
- the provision of an extensive range of classroom-level material, including books and other types of teaching and learning material
- the provision of classroom-level monitoring and feedback.

The INSET courses provided guidance in the effective use of a book-based approach to learning and, specifically, in the use of the classroom teaching and learning materials provided by the project which, in turn, provided the opportunity for the guided practice of the concepts introduced during the courses. Delivery plans called for the provision of 11 courses for Foundation Phase teachers and 13 courses for Intermediate Phase teachers, along with their associated materials.

Table 1: Summary of programme intervention schedule

	INSET	Phase	Classroom Materials
Year 1	Introducing a literacy programme	F	Book education pack
	Using stories for language development	F	Storykit 2005: Level 1, 2 & 3, Stage A & B
	Shared reading and writing	F	
Year 2	Guided reading	F	Sunshine extension pack: Pack A & B
	Introducing a literacy programme	F/I	Book education pack
	Using stories for language development	I	Storykit 4, 5, 6 & 7
	Introduction to learning to read/home Language literacy	F	Home language starter pack and story kit Core books: Level 1 to 7 Learners books to complement Sunshine
	Shared reading and writing	I	Accelerated pack: Selection A: Level 1, 2 & 3 Selection B: Level 1, 2 & 3 Accelerated learners books to complement above
	Group and guided reading and using group readers	I	Group readers: Stage 4, 5, 6 & 7
	Group reading and using group readers	F	Learning to read and write
	Learning to read and write	F/I	Storykit little books
Year 3	Using a classroom resource collection and independent reading	I	Classroom resource collection: Level 4, 5, 6 & 7 Core books: Level 4, 5, 6 & 7
	Using a story for language development and for language across the curriculum	F/I	Storykit little books: Stage 1 to 6
	Using a non-fiction book for lesson planning	I	Sunshine Science books: level 4, 5, 6 & 7
Year 4	Reading for information skills: reading and writing across the curriculum	I	Sunshine Science books: level 4, 5, 6 & 7
	Classroom management	I	
	Teaching phonics and spelling	F/I	
Year 5	Reading and writing for real purposes	I	
	Choosing and using books/other material	F/I	

One classroom monitoring visit per teacher was planned for each course and was based upon open checklists of expected and observable competencies supplied to teachers after each course. These visits were intended to provide feedback to

teachers in their application of the materials and concepts, and to the organization itself as formative information about the developing qualitative impact of the project.

Alongside the teacher INSET, training was also provided for principals and senior school staff. READ has learned by experience that change in schools is a systemic process and that it is essential to engage them on levels beyond the classroom alone. Teachers need support in planning and implementing learning programmes based on new methods and materials and school managers need to know how to provide this support. Indeed, effective school management and leadership is now generally recognized to be an essential component of the effort to transform schools into viable institutions of learning. These courses included management and governance, financial management and budgeting, the habits of highly effective people, strategic planning for school leaders, planning the school year, communication skills and conflict management, marketing and fundraising, and strategies for building a sustainable language programme

In addition, the most enthusiastic and able teachers in schools were identified and provided with extra training as Leader Teachers. The fundamental role of these teachers was to provide programme and motivational support to the rest of the staff in between visits from READ staff. They are also, importantly, available to orient teachers who are newly appointed to the school. The intention was to train them a little in advance of the rest of the teachers so that they were able to provide support immediately after general INSET courses are completed.

The programme was delivered through a national network of regional offices in the different provinces, each of which consisted of longer-term professional READ staff along with new appointments trained as they were recruited. The regional offices were supported by the national office which provided a centralized source of specialist, logistic, training, administrative and other support.

To provide reliable and useful formative information to the management of the delivery system of the project as a whole, a systematic internal quality control programme was developed yielding direct and ongoing feedback about impact on teachers and learners at classroom-level.

Design of the Evaluation of the Project

Along with the internal monitoring system, the LFL was externally evaluated using a mixed model applying both quantitative and qualitative methods. It was based upon four generic questions:

1. Has the project been delivered as designed?
2. Has the project achieved predicted qualitative impact (*process means*) on a consistent basis in the project schools?
3. Have the predicted quantitative impacts (*product ends*) occurred in the project schools?
4. Can these process and product impacts be ascribed to the project?

It is particularly important to establish the degree to which the delivery of an intervention is directed by and embodies the design strategy. This coherence is a very significant factor in understanding impact upon both teachers and learners in that a lack of evidence of impact may be caused by incoherent or incomplete delivery rather than by an inappropriate strategic design.

Figure 1: The relationship between a strategic design and the delivery system

		STRATEGY	
		Good	Bad
DELIVERY	Good	<i>predicted impact likely</i>	<i>no impact likely</i>
	Bad	<i>Low/no impact likely</i>	<i>no impact likely</i>

These questions were to be answered through:

1. Comparison of formal project delivery reports against the delivery schedule, triangulated against principal and teacher reports of project delivery and utility.
2. A combination of principal and teacher interviews triangulated against lesson observations. Two researchers were used.
3. The application of a longitudinal quasi-experimental design using the analysis of variance between mean pre- and post-test scores on literacy and numeracy instruments for two cohorts, and at two grade levels, by project and control groups.
4. The combination of all of the above and, especially, the use of the analysis of variance within a quasi-experimental model for the collection and interpretation of both quantitative and, where sensible, qualitative information.

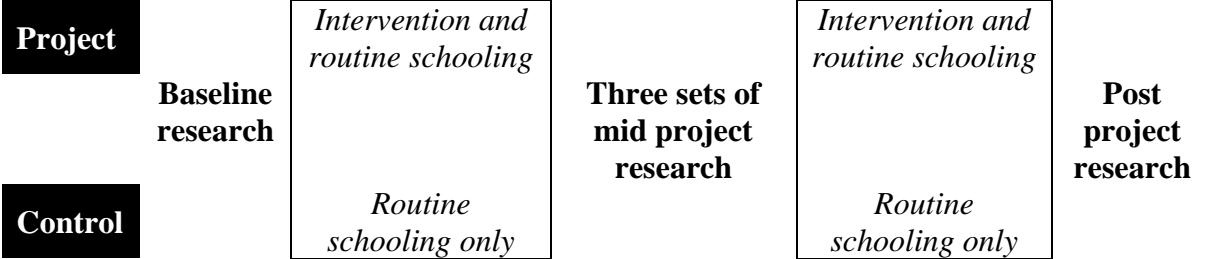
Two impact indicators, in the form of predicted outcome statements, were selected for the measurement of the summative quantitative impact of the project:

- Project cohorts will show a significantly higher degree of gain between pre and post testing over the control cohorts on a battery of literacy and numeracy instruments.
- Project schools will show a significantly greater decline in their repeat rates, measured as the proportion of repeat learners within total enrolment, over control schools.

It was logically assumed that any increase in language performance should be reflected in a corresponding general improvement in performance in all subjects taught in that language and that, as a necessary consequence, overall learner repeat rates should also decline. Numeracy testing examines this assumption more directly - the logical assumption was that if a language programme results in improved performance in numeracy it is safe to assume that improvements are likely to occur in other subjects as well.

The testing process was designed to yield two types of data; the first longitudinally tracked the performance of the *same* groups of children (cohorts) as they progressed through different grade levels, the second recorded the performance of *different* groups of children as they reached Grade 5 and Grade 7 levels. The first type is much more reliable as a measure of the impact of an intervention than the second. Tracking the same groups of learners over time as they progress from one grade to the next controls for many of the variable and contextual factors that influence their performance. Conversely, testing different groups of children at specific grade levels controls fewer variables, and the results are more open to external and contextual influences like demographic changes, different teachers, or local-level DoE and other initiatives. Nevertheless, this type of testing yields data concerning the effect of intervention projects on the general ‘standards’ of the schools, a factor routinely used in discussions about educational transformation.

Figure 2: Design of the test process



Baseline testing took place in early 2000, with three sets of annual mid-project testing, and post testing in late 2004. Cohort One had a research life of five years to reflect project impact, starting at Grade 3 in 2000 and reaching Grade 7 by 2004. Cohort Two had a life of four years, from Grade 4 in 2000 to Grade 7 in 2003. Learners from Grades 5 and 7 were tested on each research round, and data from these sources both reflect impact over five years. It is interesting to note that the children in the project group who were tested in Grade 5 in 2004 were in Grade 1 in 2000. They, therefore, started their education in schools in which the LFL project was operating.

The design was intended to yield impact data by measuring the variance of the gain in mean scores between pre and post testing of the project and control groups. In short, since both project and control groups continued to receive 'normal' schooling over the life of the programme, and since cohort mean scores in both groups were expected to increase as a result, the subtraction of the gain measured for the control group from that of the project group eliminates the effect of normal schooling and maturation - we are left with the measure of the gain in the project group that can be ascribed confidently to intervention effect.

A battery of three instruments was used at Grade 3 level while four instruments were used at Grades 4 to 7 levels.

Table 2: Instruments used for impact testing

Grade 3 & 4	Word Recognition Reading Free Writing**	Sentence Completion: 12 items Modified Cloze*: 15 items Visual Stimulus: 18 items
Grade 5 & 7	Literacy	Modified Cloze*: 68 items
Grade 5 & 7	Free Writing**	Written Stimulus: 30 items
Grade 4 to 7	Numeracy***	48 Items

**As far as I am aware, the outcome of the long debate about cloze and literacy testing in the literature is that cloze is acknowledged to be at least as reliable as any of its competitors, singly or in combination. It is based on meta-cognitive and literacy skills in that respondents are required to 'decode' text sufficiently well to be able to comprehend and complete its intended meaning.*

***The free-writing test items were scored 0 (irrelevant to stimulus, no recognizable words) to 2 (relevant to stimulus, no errors) with a further possible point to 3; where the writing was relevant or extended the stimulus and the language had a degree of sophistication or originality that made it stand out even if it may have contained an error.*

****The numeracy test was a combination of straightforward arithmetic operations with visual and numeric fractions, shape recognition, symbolic logic, conversions, sequences, combined literacy/numeracy word sums and table interpretation - all fundamental to the concept of numeracy.*

Given the significant level of differentiation within our national socio-economic context it was decided to select schools from at least two and sometimes three locations within each province to allow for some of these internal differentiations. Secondly, since the project was targeted primarily at rural schools; the learner sample needed, therefore, to be drawn primarily from rural schools though major urban areas are also represented.

The learner test sample was drawn from 90 schools (54 project and 36 control) with 10 schools (6 project and 4 control) in each province. In all, research took place in 22 separate sites across the country. As some of the more remote ‘deep rural’ areas may be unfamiliar to the general reader, the table below lists the 22 research sites in terms of the nearest town; the Tzaneen schools in the Northern Province, for example, are actually in the Bolebedu District to the North of the town. The list does, however, portray the variety of the 22 research sites.

Table 3: Research sites

Northern Province	Tzaneen	KwaZulu/Natal	Bergville
	Soutpansberg		iXopo
Mpumalanga	Badplaas	Eastern Cape	Motherwell
	Malelane		Queenstown
Gauteng	Soweto		Peddie
	Vosloorus	Western Cape	Piketberg
North West	Potchefstroom		Worcester
	Orkney		Khayelitsha/Athlone
	Mabopane	Northern Cape	Kimberley
Free State	Bloemfontein		Koopmansfontein
	Welkom		Postmasberg

The project and control schools for the evaluation were jointly chosen by the respective Departments of Education and the local READ offices as being representative of the bulk of the schools selected for the Business Trust Project in each province. The main criteria supplied by the external evaluators were that project and control schools should come from similar socio-economic environments, be as physically close to each other as possible and should not be included in any other current major school development projects.

At baseline, 20 learners were randomly selected at each of these schools from Grades 3, 4, 5 and 7 (i.e. 80 learners per school) to produce a test sample of 7 200 learners (4 320 project and 2 880 control) for the target population of 875 000. According to the literature (Krejcie and Morgan, 1970) a sample of this

size yields data with a 95% confidence level at a precision close to 1%, more than adequate for the purposes of the study.

Along with the learner test data, a wide range of information reflecting contextual, behavioural and qualitative differences between project and control schools and classrooms was also collected through interviews with the principal and two teachers, and through two lesson observations, at each project and control school.

The LFL intervention proposed to achieve impact upon learners through a mediated process, it did not, in other words, work directly with learners. The project aimed rather at improving the level of learner performance through improving the quality of the education which they received. Consequently, the second generic question upon which the design was based; *Has the project achieved predicted qualitative impact (process means) on a consistent basis in the schools?* became particularly important. To achieve consistent impact upon learner performance implied the need to achieve equally consistent impact upon the means through which the achievement of such learner impact was supposed to occur.

This research was organized through the same quasi-experimental design and was carried out in the same 90 schools as the quantitative research, running parallel to it throughout the evaluation at each of the five measurement points.

The indicators used to develop the qualitative interview and observation schedules were a combination of biographical and contextual items with the observation of a number of standard behavioural and methodological factors in classrooms. Some of these provided indicators for observing the achievement of behavioural change (e.g. types of teaching and learning activities) and some provided information on variables that helped establish the equivalence of the project and control samples (e.g. socio-economic environment of schools).

- learners/teacher ratio
- actual class sizes
- change in school enrolment
- surplus/deficit of classrooms
- school facilities
- learners living with pensioners
- level of community unemployment
- level of community illiteracy
- living conditions of learners

- payment of school fees and school funds
- supply of learning materials from the doe
- INSET and materials received from NGO's
- attitudes to other participants (teachers, learners & parents)
- years of experience (teachers)
- qualifications of teachers
- availability of 'core' learning and teaching materials in classrooms
- displays of learners' work
- teacher-made materials
- lesson planning and process
- monitoring and assessment of learners' work
- lesson preparation
- modes of learner activity (i.e. % of learner time spent listening, speaking, writing, reading, doing)
- focus of classroom activity (i.e. group, pair, individual)
- types of teaching and learning activities (e.g. applied activity, use of worksheets, discussion)
- use of questions by teachers (e.g. observe, estimate, summarize etc.)
- use of questions by learners (e.g. content, method, permission etc.)

In addition, the LFL internal monitoring schedules provided detailed outcome statements for all of the courses. These statements constituted a second set of indicators for lesson observations in the second and later reports of the evaluation allowing us to understand the degree and nature of classroom level impacts achieved by the project in relation to what it has predicted at each point of its implementation.

Findings of the External Evaluation

The design of the evaluation was based on four generic questions and the key findings are organized against them.

Question one: *Has the project been delivered as designed?*

Five annual reports reviewed planned versus actual delivery figures of the programme intervention and it was clear that the LFL very largely succeeded in

implementing its complete strategic design, the only exception being a small shortfall in the average number of monitoring visits per teacher. For the sake of brevity, Table 4 reports total project activity over each year of the full project life span rather than comparing actual and planned annual totals item by item.

Table 4: Summary of total project delivery

	●Schools	*Teachers	#Delegates	♣Monitoring	⊙Teachers	◆Learners	◇Equip
Year 1	957	5 500	18 679	10 717	28 150	4 000	11 350
Year 2	907	5 500	26 659	16 104	49 388	19 000	35 548
Year 3	928	1 000	26 957	19 130	6 445	0	6 445
Year 4	898	1 164	30 712	23 541	5 222	7 424	0
Year 5	896	0	22 801	20 748	0	0	0
Total	957	13 164	125 808	90 240	89 205	30 424	53 343

●The figure for each year refers to the total number of schools involved in the project. Over the life of the LFL a number have been withdrawn with the agreement of the DoE, chiefly due to amalgamation of schools in the N. Cape and some severely dysfunctional schools in other provinces.

*Teachers refer only to new teachers entering the project each year; e.g. in Year 3, 6 500 teachers were trained but only 1 000 were new to the project.

#A delegate is defined as a teacher attending a course – i.e. if one teacher attends three courses he/she will be reflected as three delegates in this column.

♣Monitoring visits refer to classroom observations by project trainers of lessons by teachers after training courses which result in the production and submission to the LFL of a formal feedback form.

⊙These materials largely consist of packs, themselves usually made up of different titles with multiple, usually six, copies of each title. If we had included all of these sets the eventual total would have been very much higher. These figures, therefore, refer to more global items like Big Books, Story Kits, Sunshine Pack, Theme Packs etc.

◆Learner material consists of reusable learner activity books in packs of 25 per class provided to teachers.

◇Equipment consisted of storage boxes, both wood and cardboard, as well as 5 500 easels.

A very high level of training, materials supply and monitoring was sustained by the LFL. In all a total of **13 164** individual teachers were trained in a total of **957** schools, a mean of **13.75** per school. Each teacher received a mean of **9.6** INSET courses and **6.85** classroom-level monitoring visits. A great deal of teaching and learning materials of different kinds were supplied to each teacher:

- a mean of **6.8** kits, each typically consisting of a teacher copy and six learner copies of a number of different titles;
- a mean of **2.3** kits of reusable learner activity books, consisting of packs of 25 books each;
- a mean of **4.05** storage boxes and easels.

This level of training, materials supply and classroom-level support far exceeded anything available to the teachers in the control schools. The logistics of delivering, administering and managing a project of this kind on such a large scale probably exceeded anything previously attempted by a single NGO in this country. The overall total of all types of sets of material delivered to schools, for example, was **172 972**, and very much more if we consider individual packs making up larger sets; LFL reports reflect delivery of an astonishing total of **4 002 103** individual books of different types – a mean of **304** per teacher. Control over such an extended exercise in materials processing and handling, especially one in which delivery of materials must be coordinated with provision of INSET, is no simple matter. When we consider INSET and monitoring as well as materials supply, the fact that the LFL was able to coherently sustain such a high level of project activity over such a long period was a noteworthy achievement in its own right.

In terms of deviations from the project intervention design, the delivery schedule called for the provision of one classroom-based monitoring visit after each course for each teacher. However, the cumulative course versus monitoring visit shortfall was **-2.75** visits by end-project. There appeared to be three main explanations for the shortfall:

- Teachers only received monitoring visits after substantive programme courses but not after motivational and other general workshops. Consequently, one would not in any case expect a perfect match between the mean numbers of courses attended and visits received per teacher.
- In some cases, shortfalls occurred through routine project staff turnover while newly appointed staff was being trained.
- The effort to ensure that newly-appointed teachers in project schools received INSET and monitoring to support their ability to use project-supplied materials ‘inherited’ from departed teachers who had already been trained and visited, inevitably placed stress upon the ability of LFL to keep up with its routine schedule of monitoring.

In general, despite the fact that it would indisputably have been better to achieve complete monitoring coverage according to project plans, these factors largely account for the shortfall. Given the already very large figure of over **90 000** monitoring visits completed, it would clearly be unreasonable to assume that the project delivery plan had been seriously compromised by the shortfall to the extent that the evaluation was no longer measuring the impact of the strategic design of the LFL. It should also be noted that a number of visits by project staff to schools did not involve formal classroom monitoring and feedback; information gathering and dissemination, problem-solving, checking materials

supply and issuing, planning for motivational events (e.g. Festival of Books and Readathon), etc were among other reasons for school visits.

In summary, the evaluation concluded that the programme delivery system operated effectively enough to ensure that the intervention was delivered in full and that, consequently, we were evaluating the impacts of the application of the strategic design of the project.

Question Two: *Has the project achieved its predicted qualitative impact (the process means of the project) on a consistent basis in the project schools?*

All of the reports of this evaluation noted that teachers routinely used the materials on a regular basis, most of them along with the project-supplied teacher guides, and the consequence was that a LFL-based lesson, in its various forms, was recognizably such in all of the project schools. Further, there was clear evidence that the INSET and monitoring provided by the project succeeded in achieving a consistent impact on the classroom behaviour of teachers across the sample. This was the central classroom-level finding of all of the five evaluation reports.

Principals and teachers were virtually unanimous in their approval of the LFL and consistently reported that the predicted changes occurred in classrooms throughout the study. Lesson observations (180) confirmed that measurable or observable project impacts occurred against a number of specific indicators:

- An increased number of observations of displays of learner work: +28.8% increase over control.
- An increased number of observations of the use of teacher-made materials in project classrooms: +17.6% increase over control.
- An increased proportion of overall lesson time spent reading by learners: +6.7% of total lesson time increase over control.
- An increased proportion of overall lesson time devoted to reading to learners: +9.5% of total lesson time increase over control.
- An improved level of quality in the use of group work: qualitative improvements according to researchers' judgements during lesson observations.
- An increase in the use of comprehension-type questions: increase of 5.2% over control.

- The LFL proved remarkably successful in selecting materials that were universally welcomed and used in all of the different local and regional contexts in which research takes place, even if to varying degrees of both teacher and learner comprehension.
- The project methods and, especially, materials were generally supporting the presentation of higher quality lessons: qualitative improvements on seven of eight indicators over control according to researchers' judgements during lesson observations.

It is especially noteworthy that the level of attention dedicated to reading continued to increase throughout the study in the project schools – by post-project research there was an increase of +16.2% of total lesson time over control spent reading (combining learners reading alone with teachers reading to learners.) This was clearly a project impact, and a very significant one in explaining the degree of learner impact reflected by the study. It was obviously made more possible in the first place by the much greater supply of books available to teachers and learners in project schools, though there was little evidence of the extension of the practice of reading in a more qualitative sense, especially for sustained individual reading for significant periods.

It should also be said that while children in project schools improved relative to those in control schools, the quantity and level of writing remained generally very low indeed in both types of schools. Learner workbooks indicated that few learners could correctly complete simple sentence stems, even less had control of anything but the simplest and most limited vocabulary, or could spell words with any degree of accuracy.

In addition, the study was designed to triangulate project delivery reports with reports from school participants – **96%** and **98%** of teachers interviewed confirmed they had received materials and INSET, respectively, from the project while **100%** of principals confirmed that they had received INSET. However, it proved increasingly difficult to confirm specific titles as the research continued as many teachers were unable to recall specific INSET and materials with which they had been supplied, especially those supplied in the first and second years of the intervention – the figures reported in Tables 5, 6 and 7 are, consequently, not complete.

The research for the final report also included a question asking principals and teachers to nominate the INSET and materials they had personally found most useful at school/classroom level. Consequently, although the delivery figures cannot be directly compared with the more accurate project-supplied figures,

supported by documentation, they do reflect the relative utility value placed on each item by project participants; they may be of interest to designers of similar intervention programmes in future. Interviewees were allowed to nominate a maximum of three categories in terms of usefulness to ensure a high degree of value-based choice in the responses, making it possible to construct a rank order of the utility of materials and INSET. Without this sort of device, teachers typically provide a blanket endorsement of all of the project components, making it impossible to establish the actual relative value of each set.

Table 5: Materials provision and utility: teachers (%)

Type	Utility Rank	Received
New heights	1	31.2
Story kit	2	91.7
Home language starter pack and story kit	3	13.5
Accelerated pack	4	70.8
Group Readers	5	86.5
Sunshine extension pack	6	81.2
Story Kit little books	7	74.0
Book education pack	8	85.0
Classroom resource collection	9	80.2
Learners books: accelerated pack	10	66.7
Core books	11	18.7
Learners books for Sunshine	12	78.1
Learning to read and write	13	30.2
Sunshine science books	14	9.4
<i>Other: Writing challenge, Fluency packs, Shared reading and writing, Charts, Posters</i>	<i>n/a</i>	<i>15.6</i>

Table 6: INSET provision and utility: teachers (%)

Course	Utility Rank	Attended
Shared reading and writing	1	78.1
Group and guided reading	2	79.2
Reading aloud	3	75.0
Reading and writing for real purposes	4	55.2
Using stories for language development	5	71.9
Book education	6	67.7
Reading for information skills	7	50.0
Learning to read and write	8	32.3
Teaching phonics and spelling	9	24.0
Using a non-fiction book for lesson planning	10	61.5
Using a classroom resource collection	11	66.7
Classroom management	12	64.6
Choosing and using books	13	37.5
Independent reading	14	65.6
Introducing a literacy programme	15	54.2
Learning to read: home language literacy	16	8.3
<i>Other: Assessment, storytelling, Skill development, Methodology, 'About using the books'</i>	<i>n/a</i>	<i>8.3</i>

Table 7: INSET: principals (%)

Course	Utility Rank	Attended
Financial management and budgeting	1	77.5
Marketing and fundraising for the school	2	79.6
Strategies for building a language programme	3	18.4
School governance and management	4	75.5
School manager's leadership, mentoring and monitoring	5	44.9
Curriculum management and development	6	69.4
Management of human resources	7	69.4
School administration	8	71.4
Insights to success	9	44.9
Communication skills and conflict management	10	81.6
Parental education and involvement	10	20.0
Management of physical resources	10	20.0
Strategic planning for school leaders	11	67.3
Planning the last year of the LFL project	12	10.2

Question Three: *Have the predicted quantitative impacts (the product ends sought by the project) occurred in the project schools?*

Cohort One enjoyed the longest research life and the longest exposure (5 years) to the effects of the LFL. It, consequently, is the most reliable of the measures contained in the report and the one that should carry the most weight in the measurement of the learner impact of the project.

The discussions that follow report the raw data in terms of variance - the difference in gain in score between project and control groups between pre and post-testing. The gain in score of the control group over this period is subtracted from the gain of the project group to yield the measure of project impact. Impact on learner performance is reported for the project group in relation to the control group; a *plus* sign indicates the degree to which the gain of the project group *exceeded* that of the control group, a minus sign the opposite. The figures throughout refer to percentage point increases rather than percentage increase of the baseline score – i.e. a pre score of 10% and a post score of 20 % indicates 10 percentage points increase and a 100% increase of the baseline score.

The second report reflected a mean impact score +1.7% after one year in favour of the project group for Cohort One. Since the sampling error of that data was 1%, the rigour of the design, and of the application of the data collection process, supported the conclusion that we were seeing the first systematic and

empirical evidence that the project was achieving its core impact objective, the acceleration of the rate at which learners were improving. The report went on to comment:

“If this conclusion is correct, we can predict that Cohort I will demonstrate an increased rate of learning in successive tests, and that Cohort II will demonstrate the same pattern of increasing gain of project over control as Cohort I. Further, since Cohort I will be exposed to the programme for the longest period, we can predict that it will demonstrate the largest absolute gain of the cohorts.”

The third and fourth reports subsequently confirmed that the project group of Cohort One increased its mean literacy impact score; from +1.7% to +3.7% to +6.4%. It will be noted that it achieved an increase in the *rate* at which the difference between project and control groups was widening over the first four years. In other words, it was not only getting better, but was doing so at an accelerating pace as its participation in the programme unfolded. Secondly, as predicted, Cohort Two provided evidence of a significantly increased rate of gain in the project group to +3.45% by its exit point at the end of 2003.

In the final year of the study, the impact score of Cohort One grew by just +0.45% to an overall project total of +6.85%. The acceleration noted over the previous four years disappeared as the LFL came to an end - the project group has only very slightly increased its gain over control since 2003. Nonetheless, the eventual figure is still significant in terms of project impact - there is a 100% statistical certainty that the difference has been caused by the LFL.

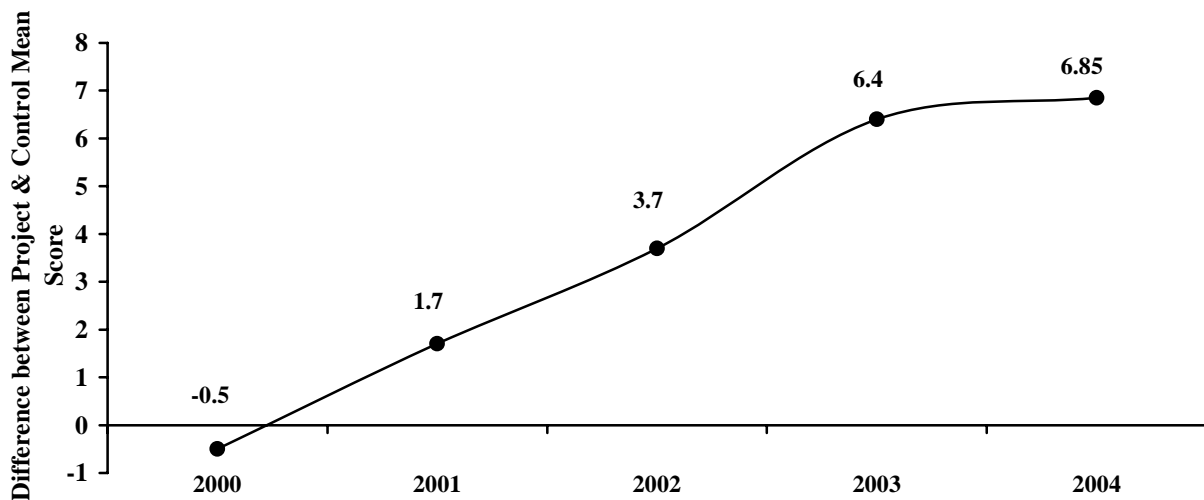


Figure 3: Trend in the LFL Data: Cohort 1

It should be noted that the overall literacy impact score obscured the difference in outcome when writing and reading are compared. The impact for reading at +8.4% was +3.1% higher than the figure of +5.3% recorded for writing. This was consistent with the scores contained in previous reports and with the data derived from lesson observations throughout the study. Interviews with teachers and principals, as well as lesson observations, supported the conclusion that there was a real improvement in the reading abilities of the children in project schools. This was partly due to the greatly increased supply of books and other materials enjoyed by the project schools, and partly to the INSET and monitoring with which they were provided. On the other hand, despite the significant impact score, there is little doubt that writing remained a very significant problem in all of the schools, both project and control. In neither type of school were children generally required to write more than a couple of sentences and the vast bulk of all the writing they did do was of the ‘fill in the missing word’ variety. The fact that the LFL achieved significant impact in improving the writing scores of project learners is genuinely meaningful as a project outcome but it has to be acknowledged that the problem was not yet resolved by the project design. It is apparent that the base level of writing ability, and the frequency with which it was practiced, was so low that the intervention was unable to affect significant changes in writing to the same degree as it was able to achieve significant impacts in both reading and oral competencies.

In terms of the *oral* use of English, there was no doubt that the first goal of all schools, parents, teachers and learners was a sufficient level of verbal mastery of English. So long as the majority of School Governing Bodies and the DOE continue to opt for this language as the medium of instruction at Intermediate Phase and beyond, education cannot continue in any meaningful form without this ability, even if ‘code switching’ is employed.

An improved level of ability to understand and communicate verbally in English has been cited as a major project impact throughout the evaluation by both principals and teachers. This ability was confirmed in lesson observations in project classrooms where the difference with control schools was often startling. Even very young Foundation Phase learners in some rural schools were able to sustain simple conversations with researchers in English, and the learner level of comprehension of the lessons themselves was noticeably higher in many project schools, urban or rural. That this was not achieved to the same degree on the conventional indicators of post-basic literacy - reading and writing - should not detract from this outcome even though it could not be measured by the instruments used in the study.

Finally, in terms of project impact, it should be noted that, in 2001 after the first year of the LFL, the evaluators were asked to provide a comment on factors that could affect the eventual outcome of Business Trust projects. One of our comments then read:

“Previous READ projects have generally been delivered at classroom level within the context of a formal language programme, for example the MAPEP or Day-by-Day series. With the decreased emphasis upon standardized learning programmes in general, and upon text books in particular, this context is altering toward a situation in which READ materials are sometimes used in their own right as the primary language programme in Foundation Phase.”

The point, in our opinion, remained valid by the end of the project. There are no longer any standardized language programmes employed by all schools but rather a wide variety of different programmes. While all may be approved by the relevant selection committees, there is an enormous range in methods, approaches, emphases and, most importantly, quality in these programmes. As a consequence, in many of the project schools the LFL was carrying the burden of providing *both* initial basic oral literacy at all grade levels *and* its evolution into the more developed range of reading and writing competencies called literacy, of which verbal proficiency is a necessary, but not sufficient, precondition.

In our opinion, the LFL strategic approach – modified book flood - would have had more impact on reading and writing if children were generally more proficient in oral and written English in the project schools at all grade levels in the first place.

While this analysis has focused on the main component of the study sample, a summary of the project over control gain score for all of these components confirms positive impact across the sample for literacy.

Table 8: Summary of impact for all components of the sample

	Writing	Reading	Mean Lit.	Numeracy
Cohort I	+5.3	+8.4	+6.85	+1.0
Cohort II	+3.4	+3.5	+3.45	+0.5
Grade 5	+7.1	+8.15	+7.6	+2.85
Grade 7	+6.4	+9.1	+7.75	+4.8

The consistency of the data is unmistakable; all of the twenty impact scores were positive, even if two of them – numeracy for both cohorts – were too low to be statistically significant. The data clearly indicated that the null hypothesis was rejected – the Learning for Living Project achieved significant impact upon project learners – and that this impact has been caused by the project to a 100% degree of certainty. The data for Cohort I is the most reliable of the different comparisons and, in the opinion of the evaluators, it is the measure most likely to reflect the actual impact of the project. The rest of the comparisons confirm that positive impact has occurred; Cohort I provides the fine measurement.

The chart below provides the same information in a graphic format and illustrates the relative gains achieved by the components of the sample for language. Each column reflects the degree of improvement in the scores of the project group over those achieved by the controls between pre and post-testing.

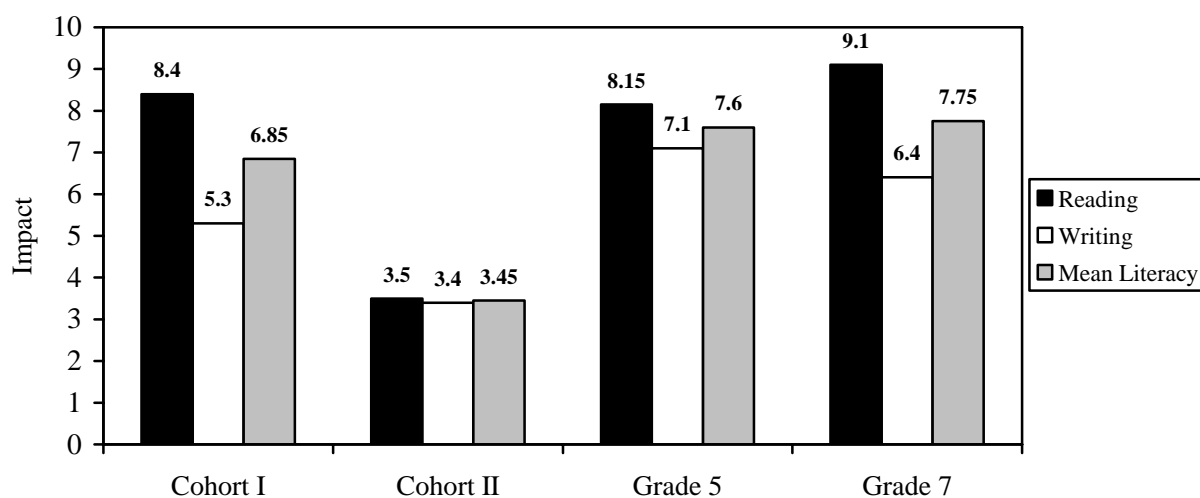


Figure 4: Summary of impact on literacy

However, it was evident that the prediction that numeracy scores would increase along with literacy scores was *not* supported in this study. Classroom observations suggested that while literacy may be a necessary precondition for numeracy it is clearly not sufficient on its own. The clear implication is that poor inputs and outcomes in mathematics education exist independently of the ability of children to understand the language in which it is learned.

The relationship between mathematics and literacy is a central issue in South African education. Clearly, the ability of learners to understand the language in which they are taught is of critical importance. The National Systemic Evaluation showed that where the language of learning and teaching was the same as that used in the home, learners obtained better results. It is hardly surprising that the better learners understand and communicate in the language of instruction, the more chance they have of achieving a higher level of competence in any subject taught in that language. However, as we have seen, the findings of the LFL study suggest that while competence in the LOLT may be a precondition for competence in Mathematics, it is not a sufficient guarantee that such competence will, in fact, be achieved.

Phase I of Primary Mathematics Research Project (Schollar, 2004) provided information on this issue using data from a national sample of 4 483 mathematics test scripts at Grades 5 and 7.

Table 9: PMRP: Difference in mathematics scores obtained by the sub-samples with the highest and lowest literacy scores (%)

Grade	Literacy Category	Mathematics Score	Difference
5	Lowest	26.7	
	Highest	54.8	<u>+28.1</u>
7	Lowest	52.7	
	Highest	57.3	<u>+4.6</u>

A direct relationship between literacy and Mathematics is very much more evident at the lower grade level – the difference in mathematics score for the sample components with the highest and lowest literacy scores declines by **-23.5%** between Grade 5 and 7.

The PMRP scrutinized learner scripts to investigate the actual methods learners use when trying to solve problems. An astonishing 79.5% of Grade Five and 60.3% of Grade Seven learners still relied on simple unit counting to one degree or another. (Unit counting is defined as the method in which all kinds of arithmetic problems are solved by reducing the numbers involved to single unit markings and counting them.) Further, of all the problems learners tried to solve at Grade Five level, at least 50% of all these attempts used unit counting, and at least 27.4% at Grade Seven. Very few learners indeed were capable of performing conventional multiplication operations, even fewer could handle division with any degree of competence.

Phase I of the PMRP concluded that the fundamental cause of poor learner performance across our education system was a failure to extend the ability of learners from counting to true calculating in their primary schooling. All more complex mathematics depends, in the first instance, on an instinctive understanding of place value within the base-10 number system, combined with an ability to readily perform basic calculations and see simple numeric relationships. The study concluded that this problem was caused by the application of ineffective learning theories in classrooms, chief amongst which was the virtual disappearance of memorization, consistent drill and regular extensive practice of learned content.

The second indicator for impact upon learner performance in the LFL assumed that any increase in language performance should be reflected by a corresponding general improvement in performance in subjects taught in that language and that, as a consequence, overall learner repeat rates should decline in project schools. However, there was no evidence of significant project impact on this indicator – the difference in pass rates as measured by the proportion of

repeats within total enrolment by the end of the project was very low at +0.3%. However, previous reports noted that repeat rates, already low at baseline, were falling steadily in *both* project and control groups throughout the study period. The reasons given by school-level interviewees for this general decline in repeat rates were:

- a belief that ‘in OBE nobody fails’
- the restriction of failures to one per phase for a learner
- the reviewing of school-level failures by the DoE, or by the school itself on the basis of DoE-based guidelines, resulting in the passing of a number of children who had been failed by internal school assessments – a practice referred to as ‘condoning’ their promotion.

While the effect of the first on repeat rates is impossible, and the second very difficult, to quantify it is possible to do so for the third factor. Figures were collected for 2002 and 2004.

Table 10: Effect of condoned passes on repeat rates (% of enrolment)

	Failed by school before condoning	Actual repeats after condoning	Difference
2002			
Project	9.5	8.0	-1.5
Control	11.0	9.8	-1.4
2004			
Project	7.5	5.9	-1.6
Control	7.9	5.5	-2.4

‘Condoning’ was clearly the most significant factor sustaining the generalized decline in repeat rates in both project and control schools. There was, in other words, an external variable affecting both groups that obscured any potential project impact and rendered the indicator unusable for its measurement.

The social significance of the absolute degree of change achieved by the Learning for Living project in relation to the needs of the national education system, in the absence of a comparative and longitudinal study combining data from a variety of language and book-based programmes, is essentially a political and economic question. The question is obviously bound up with the issue of cost. While the evaluation was not asked to consider the issue, it appears that the impacts achieved by the LFL were achieved at a low input cost. The project cost R153 million in total for a total of 875 000 children yielding a per capita cost of

R175 per learner over the whole five year project, including project staff salaries and administration.

Question Four: *Can process and product impacts measured or observed in the schools be ascribed to the project?*

All of the data and, especially, the use of the analysis of variance within a quasi-experimental model for the collection and interpretation of both quantitative and qualitative information, supports the argument that the changes that have been measured or observed have occurred as a result of participation in the project.

Conclusions

The strategic approach embodied in the Learning for Living Project – the supply of a great deal of books and other printed materials supported by extensive INSET and classroom support based on READ’s Balanced Literacy Programme - succeeded in achieving significant impact upon the language performance of learners in South African schools at a low per capita cost. In terms of measured impact, this effect was strongest in reading and somewhat less so in writing. In terms of inferred impact (i.e. impact that was not measured) interviews with participants and lesson observations by external researchers suggested that learner performance in oral communication was dramatically improved.

The relative efficiency of this strategic book-based approach, as against competing approaches, can only be distinguished through a longitudinal study of a variety of these alternate approaches. Nonetheless, the LFL achieved sufficient impact for the READ Educational Trust to be invited to implement, or continue to implement, similar programmes in a number of other education development programmes:

- The Integrated Education Program of RTI International and USAID in KwaZulu-Natal, Limpopo, Eastern Cape and Northern Cape.
- The Rally to Read Programme funded through McCarthy Limited in rural schools in all provinces except Gauteng.
- The Accelerated Programme for Language, Literacy and Communication for the literacy strategy of the Gauteng Department of Education.
- The Literacy Strategy of the Free State Department of Education.

The rate at which impact was achieved increased steadily for the first four years of the programme and slowed over the last year – the clear implication is that intervention effect reaches a ceiling after some time and continued investment after this point by an external agency is likely to produce diminishing returns on investment.

Achieving long-term impacts and sustaining intervention effects require the establishment of a programme within the routine functioning of the Department of Education. Although the Learning for Living Project made genuine efforts to secure this level of involvement of departmental officials, as have many other educational developmental programmes in this country, it was clear that consistent involvement and enablement of these officials depends to a very large degree on the attitude and motivation of individual officials. In some cases, the LFL project achieved close relations with DoE officials and it would be very interesting indeed to re-visit these areas to investigate the longer-term effect of the intervention strategy after the withdrawal of the external agency.

The current application of the READ programme through the Free State and Gauteng Departments of Education is, therefore, of particular interest in terms of the degree of transference of the programme to departmental officials that is achieved by these programmes.

In terms of general implications for the South African education system, the Learning for Living Project has suggested that the supply of materials embodying a consistent approach to learning and a detailed syllabus of study, combined with extensive monitoring, is more likely to achieve impact on learner performance than teacher-based learning programmes utilizing a wide variety of texts, books and other learning materials. The evaluation also suggested that improvements in literacy are not necessarily correlated with improvements in performance in mathematics and the clear implication is that poor inputs and outcomes in mathematics education exist independently of the ability of children to understand the language in which it is learned. Finally, the evaluation suggested that the generalized decline in failure rates in primary schools is being achieved through administrative policies rather than through improved learner performance.

In conclusion, it should be acknowledged that it is very unusual for an evaluation to have the opportunity to use five measurement points; one before the project commenced delivery, three during delivery and one after project completion. Three rounds over three years (pre, mid and post) is normally the best that can be hoped for and, in many cases, researchers are asked to evaluate

a project only after its completion - one round of data collection without baselines. Finally, it was also very unusual for a study to be able to use such a large control group - in many studies researchers are asked to work without a control group – or with a very small control group - against which to measure project impact.

The end result is that the evaluation study of Learning for Living was based upon the use of the strongest available design and both READ and the Business Trust deserve mention for their recognition of not only the need for a rigorous evaluation of the LFL, but also of the need to provide the research with the most reliable of design and empirical foundations.

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- UNICEF 1999, First Steps Programme. See: http://www.unicef.org/earlychildhood/files/maldives_first_steps.pdf

Further Reading

All of the five LFL evaluation reports can be obtained from the author. The final report is also available on the web at:

http://www.jet.org.za/item.php?i_id=220

The reports of Phases I and II of the Primary Mathematics Research Project can be obtained from the author while a Power Point Presentation on the findings of Phase II is available at

http://www.jet.org.za/attachment_view.php?ia_id=71.

The READ Educational Trust Home Page:

<http://www.read.org.za/>

The Business Trust Home Page

[http://www.btrust.org.za/index.aspx?_ =45](http://www.btrust.org.za/index.aspx?_=45)

The Rally to READ Project

<http://www.rallytoread.co.za/cfm/frames.htm>

The Accelerated Programme for Literacy, Language and Communication

<http://www.read.org.za/Gautengliteracy/tabid/1380/Default.aspx>

The Integrated Education Program

<http://iep.rti.org/>